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TECHNICAL REPORT

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FLAMMABILITY AND SMOKE CHARACTERISTICS  
OF AIRCRAFT INTERIOR MATERIALS

John F. Marcy E. B. Nicholas J. E. Demaree  
Systems Research and Development Service

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INTERIOR MATERIALS

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by

John F. Marcy  
E. B. Nicholas  
J. E. Demaree

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## SUMMARY

Flammability and smoke characteristics of interior materials were determined from a selection of 109 materials representative of present usage in the aviation industry. A comparison was made of the flame-resistant characteristics exhibited by the different materials on the basis of: (1) test method, (2) thickness, weight, composition and backing, (3) fire-retardant treatment, and (4) degradation from use and cleaning. By employing test methods defined in FAA Flight Standards Service Release 453 and Federal Specification CCC-T-191b, burning characteristics were obtained in terms of burn rate, burn length, and self-extinguishing time. A Flame-Spread Index and smoke factor also were obtained by making use of the Radiant Panel Test Apparatus.

## INTRODUCTION

This project was designed to provide technical information from standard laboratory fire tests that could be used as a basis for defining more acceptable flame-resistant standards and test methods for aircraft interior materials than those now provided by FAA Flight Standards Service (FSS) Release No. 453.

Recent fire experience in air transport passenger compartments and the development of new materials and test methods had suggested that the present standards were perhaps no longer adequate. As part of the project assignment, a laboratory test program was established using the test equipment and facilities at the National Bureau of Standards, Washington, D. C. Under this test program, some 100 different materials representative of materials in current use in commercial air transport were tested for relative flammability by various test methods including that specified in FSS Release No. 453, for direct comparison. Future work on the project will include toxic gas analyses on the combustion by-products of materials and also full-scale cabin fire tests using interiors with different degrees of fire resistance. The result of these tests will be covered in separate reports.

## BACKGROUND

The events that preceded this project and were responsible for it being conducted were foremost: (1) concern with recent fire experience involving interior materials in air transport passenger cabins, (2) increased use of plastics and synthetics in interior furnishings, and (3) development of new laboratory test methods and criteria for evaluating flame-resistant characteristics of materials.

An acceptable procedure for showing compliance with the pertinent flame-resistant requirements in CAR's 3, 4b, 6, and 7 is contained in FSS Release 453, dated November 9, 1961. This document is based almost entirely on an earlier Safety Regulation Release 259, dated August 26, 1947. The two documents establish both a test method and a burn-rate limit of 4 inches per minute for showing compliance. However, a burn rate of this magnitude is now generally considered very lenient. A survey of interior materials in aircraft reveals that these are essentially the same as those offered to and used by industry in general; the most notable exception among the aircraft materials being the vinyl-coated fiberglass fabrics. Other exceptions are the synthetic fiber fabrics and

vinyl sheets which are sometimes specially flame-retardant treated. In any case, the degree of flame resistance required by present regulations does not encourage the development or use of better materials at this time. During the last few years, however, as a result of a series of fire in which the interior cabins of several large transport aircraft were severely damaged (Reference 1), the aviation industry has shown an increasing interest in the problem of minimizing the hazard from cabin fires (References 2 and 3). At least one major aircraft company has undertaken an extensive testing program with the object of selecting the best flame-retardant materials available from industry for use in interior cabins. These materials are selected according to their exceptional self-extinguishing properties. A very high percentage of the materials which are found to pass the present regulations fail to meet these more severe tests.

A test program which is concerned with the upgrading of flame-resistant materials needs to consider, first, the validity of the test methods employed to establish new flame-resistant limits and, second, whether such new limits are adequate. Present standards which are based on Federal Specification CCC-T-191b, May 1951, titled "Textile Test Methods," may be inadequate. This title raises the question whether materials other than fabrics may be justifiably considered to fall in this classification since many of the interior materials now in use consist of sheets, laminates, and assemblies of several components containing plastics, glass, and even paper. A second consideration involves the severity of the test method. The rapid spread of fires throughout the cabins of large transports (Reference 1) was surprising in view of the use of materials presumably flame resistant.

The problem of devising more realistic test methods and criteria has engaged the attention of the leading research and testing laboratories. Test methods (References 4, 5, and 6) utilizing large ignition sources, such as fire tunnels heated by large gas flames and a radiant panel, have been developed for this purpose. These more severe methods are used extensively for hazard classification of building materials. Some of the vinyl-coated fabric materials now supplied to the aviation industry were tested in a 25-foot tunnel and displayed the Underwriters Laboratories, Inc., label (Reference 7). These methods also provide a smoke factor for the burning material. This factor (Reference 8) is receiving increasing interest due to the widespread use of plastics which, in general, produce much larger quantities of smoke than do the cellulose-derived materials.

The use of plastics also has been responsible for the concern of late shown over the problem of toxic gases. Normally, the only toxic gas of sufficient concentration to be dangerous to life is carbon monoxide (References 8 and 9). In the case of some heated or burning plastics, however, other gases more toxic than carbon monoxide may be produced in concentrations sufficient to become hazardous (Reference 10). Toxicity is a difficult problem to analyze (References 11 and 12) since it depends to a large extent on the combustion process in an actual fire. Laboratory tests conducted on small samples of interior materials may not provide complete or sufficient information on this hazard. Further tests utilizing a full-scale test article to simulate an actual fire in an aircraft to more accurately determine toxicity effect of the materials will be undertaken in the future as a second phase of this project.

Fire-retardant treatment is effective both by surface coating of the fabrics (References 13 and 14) and by incorporation of the chemicals within the material itself. Published data, however, show that the effect with plastics is erratic (Reference 15). In contrast, the salts used in the coating of the fabrics are generally effective in making the material more self-extinguishing when used in sufficient quantity. However, the treatment is affected by cleaning agents which dissolve the salts (Reference 16). Therefore, the treatment must be renewed to remain effective.

The work described in this report is concerned mainly with a study of test methods and their application to the fire testing of aircraft interior materials. To insure a satisfactory cross section of all materials in common use in aviation, over 100 materials were selected from among some dozen different sources including two aircraft companies, two airlines and, the rest, materials manufacturers. A majority of these materials may be seen to consist of vinyls and synthetic fibers characteristic of modern interior furnishings.

## DISCUSSION

### Fire Testing

The ability to resist fire is one of the important properties of materials. Materials used in aircraft and subject to fire are divided into four classifications. These are in order of the severity of the requirements as follows: (1) fireproof, (2) fire resistant, (3) flame resistant, and (4) flash resistant. The division between these classifications is more or less arbitrary and dependent upon the intended use of the material.

Fireproof and fire-resistant materials are generally limited to the metals, fiberglass or asbestos. These materials are tested for flame penetration through the material rather than flame spread.

The 4-inch-per-minute burn rate, which is the upper limit of flame-resistant materials, with which this project is concerned, was established prior to the year 1947. The basis for the acceptance of this figure was the flammability of doped cotton fabric with cellulose acetate butyrate which was used as a standard material and shown to have a burn rate of 2 - 4 inches per minute in tests conducted by the National Bureau of Standards.

The factors which determine the degree of flame resistance are: (1) minimum heat, temperature and time required for the material to ignite, (2) rapidity by which the flames propagate once the material is ignited, (3) tendency of the flames to become self-extinguishing upon removal of the ignition source, and (4) heat generated by the burning material. Other factors related to fire-resistant requirements are smoke and toxicity of the gases produced by the burning material. Various test methods have been designed to measure these factors among which are the methods used in this investigation.

The equipment used in the various tests to compare the ignition time, burning rate, self-extinguishing time and smoke production of a large number of materials was that used by industry and government laboratories. To insure that flame-resistant ratings assigned to the materials are valid and generally acceptable, it is essential that both the equipment and test procedures are standardized. By nature, fire tests are difficult to duplicate; therefore, complete uniformity in test methods is essential. Because of the lack of required test equipment at the National Aviation Facilities Experimental Center (NAFEC), use was made of the facilities of the Fire Protection Section, National Bureau of Standards, Washington, D. C. These facilities included a conditioning chamber for the materials, apparatus for testing materials in a horizontal position as in FSS Release 453, apparatus for testing materials in a vertical position, and apparatus for testing materials subjected to a radiant heat source.

The Radiant Panel Test Apparatus was developed by the National Bureau of Standards and has achieved widespread use in testing laboratories and by materials manufacturers as a research tool. The test method has been adopted as an Interim Federal Standard No. 00136b, December 1962, titled "Flame-Spread Properties of Materials." The

types of materials which may be tested by this method include those in the form of "boards, sheets, structural members, heavy fabrics, finish materials, films or sheets and combinations of any of these." Unlike the Bunsen burner fire tests, this apparatus continues to heat the specimen while it is undergoing test, as would be the case in an actual fire involving other surrounding materials. This consideration is absent in the Bunsen burner tests which only consider the burner flame as the sole source of heat feeding the flames.

In addition to the four different methods by which the materials were compared - FSS Release 453, Horizontal Test Method 5906, Vertical Test Method 5902, and Radiant Panel Test Method - there exists other methods for specific applications in connection with flame-retardant treated textiles, plastics, vinyl-coated glass, and synthetic fabrics. In addition to the six test methods contained in Federal Specification CCC-T-191b, other recognized test methods have been established: (1) National Fire Protection Association (Reference 16), (2) American Society for Testing Materials (References 17 and 18), (3) Society of Automotive Engineers (Reference 19), and (4) Military (Reference 20).

#### Equipment Description

1. Horizontal Rate of Burning Apparatus: This apparatus is used in both the FSS Release 453 and CCC-T-191b Method 5906, and is shown in Fig. 1. The essential parts of the apparatus consist of a Bunsen burner ignition source, a ventilated metal cabinet for draft-free environment, a specimen holder for rigid specimen support, and a stopwatch.

2. Vertical Rate of Burning Apparatus: This apparatus is used in CCC-T-191b Method 5902, and is shown in Fig. 2. The essential parts of the apparatus are a ventilated metal cabinet for draft-free environment, a Bunsen burner ignition source, a specimen holder for rigid specimen support, a set of weights, and a timer.

3. Radiant Panel Flame-Spread Apparatus: The apparatus is shown in Fig. 3. The essential parts of the apparatus consist of a gas-fired radiant panel heat source, a pilot burner ignition source, a specimen holder, a temperature instrumented stack and a smoke sampler. A brief description of each of these parts follows:

a. Radiant Panel: This provides a radiant heat source to the burning material. The radiant panel consists of a porous refractory material fed from the rear with a premixed gas-air supply. Combustion is nearly completed within the pores of the refractory material providing a uniform temperature of 1238° F. over its entire area. Dimensions of the radiant surface of the panel are 18 by 12 inches. A radiation pyrometer, shown in the photograph, is used to adjust the temperature of the panel.

b. Pilot Burner: This provides a flame to force ignition at the top of the specimen. The burner consists of a short length of 1/8-inch I. D. stainless steel tube with a porcelain nozzle attachment. The burner is fed with acetylene, premixed with air.

c. Specimen Holder: This provides a rigid support for the test specimens and consists of a frame with a clamping arrangement. Overall size of the holder is 19 3/8 by 6 1/4 inches, allowing an exposed surface of 17 5/8 by 5 1/4 inches. The holder is inclined at an angle of 30° away from the radiant panel which is in a vertical position. Markings on the holder at 3-inch intervals are provided for timing flame propagation.

d. Instrumented Stack: This provides means for measuring the heat rise in the exhaust stack due to the burning of the specimen. Eight chromel alumel thermocouples connected in parallel are placed inside the stack to provide an average stack temperature which is recorded continuously. Airflow through the stack and out through the hood is adjusted to a calibrated air velocity of 100 feet per minute with no heating of the panel.

e. Smoke Sampler: This provides means for measuring the smoke density produced by the burning samples. A sample of the exhaust gases and fumes is aspirated from the top of the stack through a filter paper which collects the solid smoke particles.

### Laboratory Tests and Measurements

#### 1. Horizontal Rate of Burning Test Procedure

a. Four test specimens, 13 1/4 by 3 inches, were cut from each sample material. The fabrics were cut lengthwise to the warp direction. (FSS Release 453 specifies tests in both directions of the weave to determine the most critical direction.)

b. The specimens in all fire tests were conditioned for at least 12 hours in a room at 73° F. +5° F. and a relative humidity of 50 percent +5 percent.

c. The burner flame was adjusted with no air intake to 1 1/2 inches in height.

d. The specimen was clamped in the holder and positioned inside the cabinet with the 3/4 inch of the flame tip directly below the starting edge of the specimen. Ambient temperature inside the cabinet measured between 95° F. and 115° F.

e. Ignition time, or the time required for the material to flame, was recorded from the instant the specimen was slid into position over the burner flame until the specimen started to flame.

f. The flame was removed from the specimen after a 15-second exposure only in the case of the FSS Release 453 tests, but was allowed to remain indefinitely in position for Test Method 5906.

g. Flaming time was measured from the time the specimen ignited to the time the flame was self-extinguished or reached a given calibrated distance marker.

h. Burn length was measured from the start wire position. The specimens which were self-extinguishing and those for which burning did not extend beyond the start wire (less than 1.5 inches) were identified in the tabulation of test data by the numeral I. The specimens which burned beyond the start wire but which were self-extinguishing before reaching the stop wire (less than 11.5 inches) were identified in the tabulation of data by the numeral II. The specimens which burned the full length were considered as non-self-extinguishing and were identified in the tabulation of test data by the letter X.

i. Burn rate was measured by dividing the burn length by the flaming time. Burn rates were obtained for the initial 1.5-inch length of the specimen, the final 10-inch length of the specimen and, also, for burn lengths in between these distances. The flame front on the top of the sample was used in all tests to determine the burn rate. The flame below the specimen, however, generally traveled ahead of the flame on top of the burning specimen but was not as well defined.

j. Smoke, odor and burning characteristics of the specimens were noted and recorded.

## 2. Vertical Rate of Burning Test Procedure

a. Four test specimens, 12 by 3 inches, were cut from the same sample material, lengthwise to the warp direction.

b. The burner flame was adjusted to 1 1/2 inches in height as in the horizontal tests.

c. The specimen was clamped in the holder, placed inside the cabinet, and hung vertically from a horizontal bar, with the bar extended across the centerline of the cabinet and supported by V-blocks at each end. The specimen was positioned so that its edge was 3/4 inch directly above the center of the burner barrel. The burner was slid into position under the specimen to start the test.

d. Ignition time was measured from the instant the burner was placed under the specimen until the time the specimen began to flame.

e. The burner was removed from beneath the specimen after a 14-second exposure and the test continued.

f. Flaming time was measured from the time the burner was withdrawn until the time the flame was self-extinguished, or until the full length of the sample was burned.

g. Glow time was measured from the instant flaming stopped until the specimen ceased to emit light.

h. Burn length was measured as in the horizontal tests.

i. Char length was measured as the length of the material damaged by the fire, evidenced by tearing of the material by suspending to it specified weights. Char length was normally less than burn length since the former represented the more severely damaged areas from burning.

j. Smoke, odor and burning characteristics of the specimen were noted. Ignition time was usually easily observed since there was a

definite change in the color and shape of the burner flame. Some of the materials such as synthetic fibers melted and fell as flaming droplets which present a problem. Other materials burned so vigorously that the flames reached to the top of the cabinet.

k. Burn rate was calculated by dividing the burn length by the total flaming time including the 12-second burner exposure time, but minus the ignition time. Specimens which did not burn the entire 12-inch length were considered as self-extinguishing and were identified in the test data by the numeral I. Specimens which burned completely were considered non-self-extinguishing and were identified by the letter X.

### 3. Radiant Panel Flame Spread Test Procedure

a. Four test specimens, 18 by 6 inches, were cut from each sample material lengthwise to the warp direction.

b. A calibration of the apparatus was made to determine proper radiant panel and stack temperatures.

c. A filter disk was weighed and placed in the smoke sampler.

d. The specimen was placed in the holder and covered with a 1-inch mesh poultry netting. The netting was placed over the exposed area of the specimen for mechanical support. A 1/2-inch thick millboard was placed in the holder for backing up the specimen with a 1/2-inch air gap separating the specimen from the millboard.

e. The pilot burner was ignited and brought into position.

f. The specimen holder was placed into position with the specimen in contact with the pilot flame to initiate the fire test.

g. Ignition time was measured from the instant the specimen was in contact with the pilot flame until the time flaming of the material was first evidenced by a change in the pilot flame.

h. Burn length was measured from observation of the sustained and continuous flaming of the material down the length of the specimen. Time of arrival of the flame front at each succeeding 3-inch interval marker was measured. Flash fires moving up and down the specimen were observed with some materials. These were disregarded in the calculations. Burn length was measured from the last 3-inch marker

past which the flame was observed to have crossed. Actual burn length as such was not recorded. Instead, the flaming times for the flame front to reach the successive 3-inch positions are obtained for use in the calculation of all Flame-Spread Indexes.

i. Burn rate was obtained by dividing the first 3-inch increment length of the specimen by the time required, after ignition, for the flame to reach the 3-inch marker.

j. A smoke factor was determined as the difference in the weight to the nearest 0.1 milligram (mg.) of the filter paper before and after the fire test.

k. A heat factor was determined directly from the rise in stack temperature resulting from the combustion of the test specimen as compared to that of an asbestos-cement board under the same standard test conditions.

l. Flame-Spread Index was calculated by combining the flame propagation velocity and the heat evolution test values as shown by formulas in the Interim Federal Standard No. 00136b for the Radiant Panel Apparatus.

m. Coefficient of variation of the Flame-Spread Index between specimens of the same sample material was calculated by standard statistical methods.

n. Smoke and burning characteristics of the specimen were noted.

4. New, Used and Dry Cleaned Materials Test: Fabric and rug materials were received from one source for more direct and easier comparison. Both new and used materials of the same type were dry cleaned. New and dry cleaned specimens were obtained from the same sample material. Used materials were received in the soiled condition that would be typical of normal maintenance routine. The materials were cleaned in accordance with a major air carrier's recommendation and in a commercial plant. The rug material was cleaned with a recommended shampoo and the fabrics were cleaned in Stoddard solvent. Test procedures were identical to those employed in other tests.

## Test Results and Analysis

1. Horizontal Burn Rate Tests: The materials used in all fire tests are listed and described in Appendix 1. The test results are tabulated in Appendix 2, Tables I and II. A summary of the test data is presented in Table I of the text. Typical fire damage to a high and a low flammable material is shown in Figs. 4 and 5.

The data show the following characteristics for the materials subjected to the standard fire tests:

93 materials tested, of which -

81 were self-extinguishing within a burn length of 11.5 inches.

60 were self-extinguishing within a burn length of 1.5 inches.

12 were non-self-extinguishing and burned their full length.

4 alone were non-self-extinguishing with an average burn rate of 4 inches per minute or greater. This burn rate exceeds the limit specified in FSS Release 453. In addition, three more materials may be considered marginal failures in that one specimen out of four also exceeded this limit.

70 were self-extinguishing with a burn rate of 0 - 1 inch per minute.

23 were self-extinguishing within a 0.50-minute flaming time.

(Note that Test Method 5906 is a somewhat more severe test method than FSS Release 453 since the burner is not removed after a 0.25-minute flame exposure.)

The above statistics show that the most flammable materials were the fabrics and rugs as these showed the highest flaming time, burn length and burn rate. The uncoated fabrics were generally more flammable than

the coated fabrics. Twelve of the 19 synthetic fiber uncoated fabrics showed a flaming time longer than 2 minutes, while 9 of these showed a burn rate of 2 - 3 inches per minute. Of those nine materials, seven were non-self-extinguishing and burned the full length. The coated fabrics were generally less flammable than the uncoated fabrics such as the synthetic fibers; however, three out of the four materials which failed the FSS Release 453 tests, or equivalent, belong to this category and were outstanding exceptions. These three materials were the simulated leatherettes of vinyl-coated cotton fabric construction. In contrast to the vinyl-coated cotton fabrics, all vinyl-coated fiberglass and dynel fabrics showed no appreciable burning, as well as more rapid extinguishment within 0.50 minute. None of the vinyl sheet materials were self-extinguishing within less than 1.0 minute although the burn rate was within 1.0 inch per minute and the burn distance within 3.0 inches.

Only two other materials besides the fabrics and rugs showed any appreciable burn length. These were plexiglass and neoprene sponge. Neoprene sponge was the only material other than the three fabrics with a burn rate exceeding 4 inches per minute.

The least flammable materials were the heavier and thicker samples such as the laminates and assemblies which generally showed little or no burning. In some cases, although burn rate and distance were negligible, flaming time was considerable due to slow burning.

No direct correlation between flammability and flame-retardant treatment was evident on the basis of scattered tests and the insufficient information on the formulation of the materials obtained from suppliers. In addition to the 11 materials marked as fire-retardant treated, it was known that many other materials also had been treated for aircraft use although no confirmation of this was obtained in writing. Of the 11 fire-retardant materials, only 2 showed a burn length in excess of 1.5 inches.

The effect of both use and cleaning on the flame resistance of the material was not apparent on the four uncoated fabrics and three rug materials tested. No information of any chemical coatings that could have been applied in the manufacture of these materials to decrease their flammability was available. Therefore, it was not possible to infer any effect from the leaching out of the chemical salts deposited in the fabrics which may result from dry cleaning. Presumably, many of the fabrics, plastics, and paper listed had some degree of flame-retardant

treatment. The fire-retardant chemicals are incorporated within the vinyl materials rather than deposited on the surface as in fabrics; therefore, these materials were not affected by the solvent action of cleaning agents.

Test results utilizing FSS Release 453 Test Method for comparison to Test Method 5906 are contained in Appendix 2, Table II.

2. Vertical Burn Rate Tests: A summary of the test results contained in Appendix 2, Table III, is presented in Table II of the text. The data show the following characteristics of the materials tested:

93 materials tested, of which -

- 67 were self-extinguishing within a burn length of 12 inches.
- 37 were self-extinguishing within a burn length of 3.0 inches.
- 26 were non-self-extinguishing and burned their full length.
- 59 were self-extinguishing within a 0.50-minute flaming time following burner flame removal.
- 31 were self-extinguishing with a burn rate of 0 - 10 inches per minute.

The above statistics show that the most flammable materials were again the fabrics and rugs, especially the uncoated fabrics. Burn rates of greater than 30 inches per minute were obtained for four fabrics including two dacrons. Only 9 of the 19 uncoated fabrics were self-extinguishing and only 4 of those within 0.50 minute. These latter materials were the dacron or nylon fabrics. In contrast, 21 of the 28 coated fabrics were self-extinguishing within 0.50 minute. This number included the 11 coated fiberglass fabrics and the 4 coated dynel fabrics, the latter which showed zero flaming time. The most flammable fabrics were again the vinyl-coated cotton materials. Of 13 such materials, 5 were non-self-extinguishing and burned the full length. These again included the simulated leatherettes.

All uncoated fabrics showed a burn length of 3.0 inches or more. In contrast, 13 of the 28 coated fabrics showed a burn length of 3.0 inches or less. Both flaming time and burn length were generally greater, while the corresponding burn rate was less for the uncoated than the coated fabrics. The majority of the coated fabrics burned at the rate of 10 - 20 inches per minute compared to 10 inches per minute or less for the uncoated fabrics.

Only one of the two leathers was self-extinguishing.

Out of seven rugs, four were self-extinguishing but the time exceeded 2.0 minutes, which was also typical of the heavier, slower burning sheet materials.

It should be noted that in the vertical test method, in contrast to the other methods, both sides of the materials are subject to the burner flame. In the case of the rugs, both the face and the padding, or backing laminate, were exposed to the burner flame. Thus, in one test the foam rubber backing burned completely while the wool face material burned less than 3.0 inches. The vertical test is severe for materials with a flammable exposed undercoating.

The least flammable materials were again the heavier and thicker rigid laminates and assemblies.

Again, no positive effect of fire-retardant treatment in reducing the flame resistance of the materials was evident.

Further, definite test results showing that either the new, used, or dry cleaned condition of the material affected its flammability were scattered and inconclusive.

3. Radiant Panel Flame-Spread Index and Smoke Factor Tests: A summary of the test results contained in Appendix 2, Table IV, is presented in Table III of the text. The test data show the following characteristics for the materials:

98 materials tested, of which -

65 were self-extinguishing within a burn length of 15 inches.

44 had a Flame-Spread Index rating of 0 - 50.

28 had a Flame-Spread Index rating of 0 - 30.

54 had a smoke factor of 0 - 2 mg.

34 had a smoke factor of 0 - 1 mg.

29 had a Flame-Spread Index rating of 0 - 50  
and smoke factor of 0 - 2 mg.

25 had a Flame-Spread Index rating of 0 - 30  
and smoke factor of 0 - 2 mg.

18 had a Flame-Spread Index rating of 0 - 30  
and smoke factor of 0 - 1 mg.

The above statistics show that all categories of materials, in contrast to the burner flame tests, are flammable and will burn. The greater severity of the fire tests with the Radiant Panel burns the heavier and thicker materials that remain unaffected by the Bunsen burner flame, thus providing flammability test data for all categories of interior materials. The tendency of the Radiant Panel tests is to raise the flammability ratings of the fabrics with reference to the other categories of materials which is just the opposite of that which is shown by both the horizontal and vertical burn rate tests.

Since the Flame-Spread Index is determined in part by the heat generated by the burning samples, a dependence on weight of the combustible materials should be expected. Thus, materials which showed the smallest index ratings, therefore the best flame characteristics, were seen to be the fabrics, especially the very sheer and light-weight synthetics. Outside of this group, the vinyl and mylar-clad aluminum laminates also had exceptionally good (low) Flame-Spread Index characteristics. All five vinyl laminates in this group showed a Flame-Spread Index rating below 50 and a smoke factor below 2.0 mg.

Outstanding performance was shown by the vinyl-coated dynel fabrics and the sheer uncoated dacron fabrics. The six fabrics of this type having an average weight of less than 0.7 pound per square yard showed a Flame-Spread Index rating of only 0 - 10 and a smoke factor less than 1.0 mg. In addition to their light weight, the dynel fabrics apparently owe much of their exceptional low Flame-Spread Index characteristics to the tendency of the material to shrivel up and pull away from the flame or heat, thus decreasing its susceptibility to fire. Nylons definitely

tended to show an increase in Flame-Spread Index with weight and, likewise, for addition of metal fibers to the fabric. Out of 15 materials with a Flame-Spread Index rating of 0 - 10, 9 were fabrics; while out of 28 materials with a Flame-Spread Index rating of 0 - 30, 13 were fabrics.

The vinyl-coated fiberglass fabrics again showed superiority over the vinyl-coated cotton fabrics by comparison of the index ratings. Out of a total of 10 fiberglass fabrics, 6 had an index rating of 0 - 50. Out of a total of 10 cotton fabrics, 5 had an index rating of 300 plus. Only two of the cotton fabrics had an index rating of 0 - 50.

The two leathers showed a Flame-Spread Index rating of 100 - 300 with a relatively low smoke factor of 0 - 1 mg.

The five rugs also showed a Flame-Spread Index rating of 100 - 300 but with a much higher smoke factor with the exception of one rug.

Sheet materials showed considerable variation in index ratings. These included the two neoprene foams with a Flame-Spread Index rating over 1500. In contrast, some vinyls and one neoprene showed an index rating as low as 0 - 10 which may have been due to the exceptional fire-retardant treatment of the particular material.

Of 13 assemblies, 6 showed a Flame-Spread Index rating of 0 - 50. Five of these six materials had a vinyl or plastic fiberglass covering or were vinyl-bonded to aluminum. The sixth was an assembly with a plastic covering on polyester sheet backing.

Four of the five paper honeycomb assemblies had a Flame-Spread Index rating of 50 - 100, and one had a Flame-Spread Index rating of 30 - 50.

The smoke factor generally increased with the thickness or weight of the material as well as with the Flame-Spread Index. Vinyls, as is well known, were shown to be very productive of smoke, especially the heavier vinyl sheets.

Further, the vinyl-coated fabrics with an index rating of 0 - 50 also showed a large smoke factor of nearly 2 mg. which was twice that for the uncoated fabrics.

Reflectivity of the materials was expected to be a factor in reducing the Flame-Spread Index, particularly in this test method employing radiant heat. This was shown to be the case for two mylar sheets, one of which was aluminized and both identical except for reflectivity.

Backing of the material was expected to be a factor affecting the Flame-Spread Index because of the severity of the test method. This was shown by testing separately the materials making up the whole assembly. One assembly showed a small change in index because its immediate backing material was less flammable than the surface material. In this case, the 1-inch thick more highly flammable paper core was too far removed from the heated surface material to affect the index of the whole assembly. In contrast, another assembly showed that the more exposed highly flammable polyether foam backing significantly increased the index of the fabric covering.

Test results on the effect of fire-retardant treatment on the Flame-Spread Index were conflicting in that these results indicated, if anything, a slight increase in the Flame-Spread Index.

Test results showing the effect of use and cleaning of the materials on the Flame-Spread Index were again inconclusive. Only one rug material showed a definite increase in index with use and after shampooing. However, the effect of increasing significantly the index of one low index curtain material by spot cleaning with perchloroethylene was shown.

The two detergents, one deodorant, and perchloroethylene used in cleaning aircraft materials were shown not to be flammable by a wick test.

4. Comparison of Test Methods and Results: A comparison of the test data obtained by the different test methods shows that:

a. Burn rate by the vertical test method was of the order of 10 times more rapid than that by the horizontal test method with comparative increase in burn length.

b. Self-extinguishing time by either the horizontal or vertical test method was of the same order of magnitude.

c. Burn rate measurements by the FSS Release 453 Test Method closely agreed with those obtained by Test Method 5906 (Horizontal) since the two methods are essentially the same.

d. The vertical test method is somewhat more severe than the horizontal test method in that fewer materials were shown to be self-extinguishing. A burn length of 12 inches by the vertical test method was roughly equivalent to a burn length of 1.5 inches by the horizontal test method.

e. The majority of materials were self-extinguishing by both test methods; therefore, this property may be used as a test criteria for the flame resistance of materials by either method in the place of the less severe requirement of a given maximum burn rate. This test criteria is especially applicable to the vinyls which by nature are self-extinguishing. In the case of the uncoated fabrics, however, a self-extinguishing requirement would be severe since about one-third of the materials tested would fail to meet this requirement in the horizontal test method, and about one-half in the vertical test method.

f. Tests showed that a requirement for flame resistance based on a given burn length rather than on a burn rate is the more practical of the two for the self-extinguishing materials which comprise the bulk of the materials tested by both methods. This is because burn rate measurements in the horizontal test method are considered valid only outside the influence of the burner flame (start wire - 1.5 inches). It has significance and is applicable only to the more flammable materials which show continuous burning with a well-defined self-sustained flame over the entire length of the test sample. It should be noted, however, that the majority of materials were self-extinguishing before reaching the start wire; hence, no burn rate figures would be available if this test alone were used.

g. Tests showed that the flame resistance by the vertical test method based on a maximum self-extinguishing time of 0.50 minute is about equal to a maximum burn length of 1.5 inches by the horizontal test method.

h. The majority of the materials were self-extinguishing within less than 1.0 minute by either the vertical (75 percent) or horizontal (50 percent) test methods.

i. The Radiant Panel Test Method is the most severe of the four test methods.

j. The Radiant Panel Test Method is relatively less severe on the fabrics than on the heavier and thicker materials in comparison to the Bunsen burner test methods which show the opposite results.

k. The Radiant Panel Test Method alone, due to its large heat source, has the capacity to penetrate the thin covering materials of some assemblies to indicate to some extent the flame resistance of the immediate backing component material.

l. The Radiant Panel Test Method is the only method that yields a Flame-Spread Index rating which takes into account the heat generated by the burning sample.

m. The Radiant Panel Test Method is the only method that yields a smoke factor value in addition to a rating for flame resistance.

n. Although the Radiant Panel Test Method is fundamentally different than the Bunsen burner test methods, low Flame-Spread Index ratings for the materials tested, nevertheless, are in good agreement with requirements for both short burn length and rapid self-extinguishing time to indicate superior flame-resistant requirements by either test method. Thus, of a total of 29 materials with a Flame-Spread Index of 0 - 50 and a smoke factor of 0 - 2 mg., 25 of these materials show both a burn length of less than 1.5 inches (by the horizontal test method) and a self-extinguishing time of less than 0.50 minute (by the vertical test method). The four materials which are exceptions and do not meet all three conditions listed above are the nylons. Because these materials melt and drip in the Radiant Panel Test Method, it was difficult to obtain reproducible data using this method.

## CONCLUSIONS

Based on an analysis of the test results obtained on 109 different aircraft interior materials and from a comparison of the four test methods to achieve these results, it is concluded that:

1. The FSS Release 453 Test Method is not a suitable test procedure for materials other than fabrics.

2. There are many materials presently available and in use today which are self-extinguishing and which far exceed the flame-resistant characteristics required by a 4-inch-per-minute maximum burn rate.

3. On the basis of the tests conducted, the vertical test method is a satisfactory alternate to FSS Release 453 as a test method for fabrics that are self-extinguishing.

4. The Radiant Panel Test Method is capable of covering the entire flammability range of the interior materials tested, thus providing Flame-Spread Index ratings indicative of the degree of flame resistance.

5. The large number of interior materials containing vinyls or other plastics produce greater quantities of smoke during burning than do the cellulose-derived materials of the same flammability range.

6. The effect of the condition of the material whether new, used, or cleaned on the flame resistance of the fabrics and rugs tested was not significant.

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TABLE I

## DATA SUMMARY FOR HORIZONTAL TESTS - METHOD 5906

| Material<br>No. | Code | Class |    |   | Flaming Time (min.) |     |     |     |      | Burn Rate <sup>(1)</sup> (in. /min.) |     |     |     |    | Total Burn Length (in.) |             |              |
|-----------------|------|-------|----|---|---------------------|-----|-----|-----|------|--------------------------------------|-----|-----|-----|----|-------------------------|-------------|--------------|
|                 |      | I     | II | X | 0                   | 0.5 | 1.0 | 2.0 | 2.0+ | 0-1                                  | 1-2 | 2-3 | 3-4 | 4+ | 1.5-<br>3.5             | 3.5-<br>7.5 | 7.5-<br>11.5 |
| 2               | F1   |       | O  |   |                     |     |     |     | O    |                                      |     | O   |     |    |                         |             | O            |
| 3               |      | O     |    |   |                     |     |     | O   |      | O                                    |     |     |     |    |                         |             |              |
| 4               |      | O     |    |   |                     | O   |     |     |      | O                                    |     |     |     |    |                         |             |              |
| 6               |      |       | O  |   |                     |     |     | O   |      |                                      |     | O   |     |    |                         |             |              |
| 7               |      |       | O  |   |                     |     |     | O   |      |                                      |     | O   |     |    |                         |             |              |
| 8               |      | O     |    |   |                     |     |     | O   |      | O                                    |     |     |     |    |                         | O           |              |
| 13              |      |       | O  |   |                     |     |     | O   |      |                                      | O   |     |     |    |                         |             |              |
| 14              |      |       | O  |   |                     |     |     | O   |      |                                      |     | O   |     |    |                         |             |              |
| 15              |      | O     |    |   |                     |     | O   |     |      |                                      |     | O   |     |    |                         | O           |              |
| 16              |      | O     |    |   |                     |     | O   |     |      |                                      | O   |     |     |    | O                       |             |              |
| 17              |      | O     |    |   |                     |     |     | O   |      |                                      | O   |     |     |    |                         | O           |              |
| 18              |      |       | O  |   |                     |     |     | O   |      |                                      |     |     | O   |    |                         |             |              |
| 19              |      | O     |    |   |                     |     |     | O   |      |                                      |     | O   |     |    |                         | O           |              |
| 20              |      | O     |    |   |                     |     |     | O   |      |                                      |     | O   |     |    |                         |             | O            |
| *42             |      | O     |    |   |                     |     | O   |     |      | O                                    |     |     |     |    |                         |             |              |
| 43              |      |       | O  |   |                     |     |     | O   |      |                                      |     | O   |     |    |                         |             |              |
| *44             |      |       | O  |   |                     |     |     | O   |      | O                                    |     |     |     |    |                         | O           |              |
| 45              |      |       | O  |   |                     |     |     | O   |      |                                      |     | O   |     |    |                         |             |              |
| *70             |      | O     |    |   |                     | O   |     |     |      | O                                    |     |     |     |    |                         |             |              |
| 5               | F2   |       | O  |   |                     |     | O   |     |      |                                      | O   |     |     |    | O                       |             |              |
| 9               |      | O     |    |   |                     | O   |     |     |      | O                                    |     |     |     |    |                         |             |              |
| 21              |      | O     |    |   |                     | O   |     |     |      | O                                    |     |     |     |    |                         |             |              |
| 22              |      | O     |    |   |                     | O   |     |     |      | O                                    |     |     |     |    |                         |             |              |
| 23              |      |       | O  |   |                     |     |     | O   |      |                                      |     |     |     | O  |                         |             |              |
| 24              |      | O     |    |   |                     |     | O   |     |      | O                                    |     |     |     |    |                         |             |              |
| 28              |      | O     |    |   |                     | O   |     |     |      | O                                    |     |     |     |    |                         |             |              |
| 36              |      | O     |    |   |                     |     | O   |     |      | O                                    |     |     |     |    |                         |             |              |
| 37              |      |       | O  |   |                     |     |     | O   |      |                                      |     |     | O   |    |                         |             |              |
| 38              |      |       | O  |   |                     |     |     | O   |      |                                      |     |     |     | O  |                         |             |              |
| 40              |      |       | O  |   |                     |     | O   |     |      |                                      |     |     |     | O  |                         |             |              |
| *46             |      | O     |    |   |                     |     | O   |     |      | O                                    |     |     |     |    |                         |             |              |
| 48              |      | O     |    |   |                     |     | O   |     |      | O                                    |     |     |     |    |                         |             |              |
| 49              |      |       | O  |   |                     |     |     | O   |      |                                      |     | O   |     |    |                         | O           |              |
| 50              |      |       | O  |   |                     |     |     | O   |      |                                      |     | O   |     |    |                         |             | O            |
| 51              |      | O     |    |   |                     | O   |     |     |      | O                                    |     |     |     |    |                         |             |              |
| 52              |      | O     |    |   |                     | O   |     |     |      | O                                    |     |     |     |    |                         |             |              |
| 53              |      | O     |    |   |                     |     | O   |     |      | O                                    |     |     |     |    |                         |             |              |
| 54              |      | O     |    |   |                     |     | O   |     |      | O                                    |     |     |     |    |                         |             |              |
| 55              |      | O     |    |   |                     |     | O   |     |      | O                                    |     |     |     |    |                         |             |              |
| 56              |      | O     |    |   |                     | O   |     |     |      | O                                    |     |     |     |    |                         |             |              |
| 60              |      | O     |    |   |                     |     | O   |     |      | O                                    |     |     |     |    |                         |             |              |
| 61              |      | O     |    |   |                     | O   |     |     |      | O                                    |     |     |     |    |                         |             |              |
| 62              |      | O     |    |   |                     | O   |     |     |      | O                                    |     |     |     |    |                         |             |              |
| 63              |      | O     |    |   |                     | O   |     |     |      | O                                    |     |     |     |    |                         |             |              |
| 64              |      |       | O  |   |                     |     | O   |     |      |                                      |     | O   |     |    | O                       |             |              |
| 65              |      | O     |    |   |                     |     | O   |     |      | O                                    |     |     |     |    |                         |             |              |
| *92             |      | O     |    |   |                     |     | O   |     |      | O                                    |     |     |     |    |                         |             |              |
| *93             |      | O     |    |   |                     |     | O   |     |      | O                                    |     |     |     |    |                         |             |              |
| *94             |      | O     |    |   |                     |     | O   |     |      | O                                    |     |     |     |    |                         |             |              |

\*Flame-retardant treatment.

## Code

F - Fabric

1 - Uncoated, 2 - Coated, 3 - Leather

R - Rug

1 - Unpadded, 2 - Padded

S - Sheet, L - Laminate, A - Assembly

1 - Flexible, 2 - Semi-rigid 3 - Flexible

## Class

I Burned less than 1.5 inches (start wire).

II Burned less than 11.5 inches (stop wire).

X Burned full length.

Note (1) Burn rate measured from start wire.

TABLE I (Continued)

## DATA SUMMARY FOR HORIZONTAL TESTS - METHOD 5906

| Material<br>No. | Class<br>Code | I  | II | X  | Flaming Time (min.) |     |     |     |      | Burn Rate <sup>(1)</sup> (in. /min.) |     |     |     |    | Total Burn Length (in.) |             |              |
|-----------------|---------------|----|----|----|---------------------|-----|-----|-----|------|--------------------------------------|-----|-----|-----|----|-------------------------|-------------|--------------|
|                 |               |    |    |    | 0                   | 0.5 | 1.0 | 2.0 | 2.0+ | 0-1                                  | 1-2 | 2-3 | 3-4 | 4+ | 1.5-<br>3.5             | 3.5-<br>7.5 | 7.5-<br>11.5 |
| 67              | F3            |    | C  |    |                     |     |     |     | O    | O                                    |     |     |     |    | O                       |             |              |
| 89              |               |    | O  |    |                     |     |     | O   |      | O                                    |     |     |     |    | O                       |             |              |
| 1               | R1            | O  |    |    |                     |     |     | O   |      | O                                    |     |     |     |    |                         |             | O            |
| 12              |               |    | O  |    |                     |     |     |     | O    | O                                    |     |     |     |    |                         |             |              |
| 26              |               | O  |    |    |                     |     |     | O   |      | O                                    |     |     |     |    |                         |             |              |
| 41              |               |    | O  |    |                     |     |     |     | O    | O                                    |     |     |     |    |                         | O           |              |
| 100             |               | O  |    |    |                     |     |     | O   |      | O                                    |     |     |     |    |                         |             |              |
| 27              | R2            |    | O  |    |                     |     |     |     | O    | O                                    |     |     |     |    |                         | O           |              |
| 99              |               |    | O  |    |                     |     |     |     | O    | O                                    |     |     |     |    | O                       |             |              |
| 10              | S1            | O  |    |    |                     | O   |     |     |      | O                                    |     |     |     |    |                         |             |              |
| 47              |               |    | O  |    |                     |     | O   |     |      | O                                    |     |     |     |    | O                       |             |              |
| 66              |               | O  |    |    |                     | O   |     |     |      | O                                    |     |     |     |    |                         |             |              |
| 68              |               | O  |    |    |                     |     | O   |     |      | O                                    |     |     |     |    |                         |             |              |
| 91              |               |    |    | O  |                     |     |     |     | O    |                                      |     |     |     | O  |                         |             |              |
| 95              |               | O  |    |    |                     | O   |     |     |      | O                                    |     |     |     |    |                         |             |              |
| 96              |               | O  |    |    |                     |     | O   |     |      | O                                    |     |     |     |    |                         |             |              |
| 97              |               | O  |    |    |                     |     | O   |     |      | O                                    |     |     |     |    |                         |             |              |
| 98              |               | O  |    |    |                     |     | O   |     |      | O                                    |     |     |     |    |                         |             |              |
| 107             |               | O  |    |    |                     |     | O   |     |      | O                                    |     |     |     |    |                         |             |              |
| 108             |               | O  |    |    |                     | O   |     |     |      | O                                    |     |     |     |    |                         |             |              |
| 35              | S2            | O  |    |    |                     |     | O   |     |      | O                                    |     |     |     |    |                         |             |              |
| 69              |               | O  |    |    | O                   |     |     |     |      | O                                    |     |     |     |    |                         |             |              |
| 11              | S3            | O  |    |    |                     |     |     |     | O    | O                                    |     |     |     |    |                         |             |              |
| *30             |               | O  |    |    |                     |     |     |     | O    | O                                    |     |     |     |    |                         |             |              |
| *31             |               | O  |    |    |                     |     |     |     | O    | O                                    |     |     |     |    |                         |             |              |
| 32              |               | O  |    |    |                     |     |     |     | O    | O                                    |     |     |     |    |                         |             |              |
| *33             |               |    | O  |    |                     |     |     | O   |      | O                                    |     |     |     |    | O                       |             |              |
| 34              |               | O  |    |    |                     |     |     |     | O    | O                                    |     |     |     |    |                         |             |              |
| 77              |               | O  |    |    |                     |     |     |     | O    |                                      | O   |     |     |    |                         | O           |              |
| 25              | L1            | O  |    |    |                     |     |     | O   |      | O                                    |     |     |     |    |                         |             |              |
| 29              |               | O  |    |    |                     |     | O   |     |      | O                                    |     |     |     |    |                         |             |              |
| 57              |               | O  |    |    |                     | O   |     |     |      | O                                    |     |     |     |    |                         |             |              |
| 58              | L2            | O  |    |    |                     | O   |     |     |      | O                                    |     |     |     |    |                         |             |              |
| 59              |               | O  |    |    |                     |     | O   |     |      | O                                    |     |     |     |    |                         |             |              |
| 85              | L3            | O  |    |    | O                   |     |     |     |      | O                                    |     |     |     |    |                         |             |              |
| 86              |               | O  |    |    | O                   |     |     |     |      | O                                    |     |     |     |    |                         |             |              |
| 87              |               | O  |    |    | O                   |     |     |     |      | O                                    |     |     |     |    |                         |             |              |
| 88              |               | O  |    |    | O                   |     |     |     |      | O                                    |     |     |     |    |                         |             |              |
| 76              | A             | O  |    |    |                     |     |     |     | O    | O                                    |     |     |     |    |                         |             |              |
| 80              |               | O  |    |    |                     |     |     | O   |      | O                                    |     |     |     |    |                         |             |              |
| 81              |               | O  |    |    |                     |     |     | O   |      | O                                    |     |     |     |    |                         |             |              |
| 82              |               | O  |    |    |                     |     |     |     | O    | O                                    |     |     |     |    |                         |             |              |
| 83              |               | O  |    |    |                     |     |     |     | O    | O                                    |     |     |     |    |                         |             |              |
| 84              |               | O  |    |    |                     |     |     | O   |      | O                                    |     |     |     |    |                         |             |              |
| Total           | 93            | 60 | 21 | 12 | 5                   | 18  | 22  | 16  | 32   | 70                                   | 5   | 12  | 2   | 4  | 8                       | 9           | 4            |

\*Flame-retardant treatment.

## Code

F - Fabric

1 - Uncoated, 2 - Coated, 3 - Leather

R - Rug

1 - Unpadded, 2 - Padded

S - Sheet, L - Laminate, A - Assembly

1 - Flexible, 2 - Semi-rigid, 3 - Flexible

## Class

I Burned less than 1.5 inches (start wire).

II Burned less than 11.5 inches (stop wire).

X Burned full length.

Note (1) Burn rate measured from start wire.

TABLE II

## DATA SUMMARY FOR VERTICAL TESTS - METHOD 5902

| Material<br>No. | Class<br>Code | I | X | Flaming Time <sup>(1)</sup> (min.) |     |     |     |    | Burn Rate (in./min.) |    |    |    |     | Burn Length (in.) |   |   |   |    |
|-----------------|---------------|---|---|------------------------------------|-----|-----|-----|----|----------------------|----|----|----|-----|-------------------|---|---|---|----|
|                 |               |   |   | 0                                  | 0.5 | 1.0 | 2.0 | 2+ | 0                    | 10 | 20 | 30 | 30; | 0                 | 3 | 6 | 9 | 12 |
| 2               | F1            | O |   |                                    |     |     | O   |    | O                    |    |    |    |     |                   |   |   | O |    |
| 3               |               | O |   | O                                  |     |     |     |    |                      |    |    |    | O   |                   |   |   | O |    |
| 4               |               | O |   | O                                  |     |     |     |    |                      |    |    |    | O   |                   |   | O |   |    |
| 6               |               | O |   |                                    |     | O   |     |    |                      |    | O  |    |     |                   |   |   |   |    |
| 7               |               | O |   |                                    |     |     | O   |    | O                    |    |    |    |     |                   |   |   |   |    |
| 8               |               | O |   |                                    |     |     | O   |    | O                    |    |    |    |     |                   |   |   |   | O  |
| 13              |               | O |   |                                    |     |     | O   |    | O                    |    |    |    |     |                   |   |   |   |    |
| 14              |               | O |   |                                    |     |     | O   |    | O                    |    |    |    |     |                   |   |   |   |    |
| 15              |               | O |   |                                    |     | O   |     |    |                      |    | O  |    |     |                   |   |   | O |    |
| 16              |               | O |   |                                    | O   |     |     |    | O                    |    |    |    |     |                   |   | O |   |    |
| 17              |               | O |   |                                    |     |     | O   |    | O                    |    |    |    |     |                   |   |   |   |    |
| 18              |               | O |   |                                    |     |     | O   |    | O                    |    |    |    |     |                   |   |   |   |    |
| 19              |               | O |   |                                    |     |     |     | O  | O                    |    |    |    |     |                   |   |   | O |    |
| 20              |               | O |   |                                    |     | O   |     |    | O                    |    |    |    |     |                   |   |   | O |    |
| *42             |               | O |   |                                    |     |     | O   |    | O                    |    |    |    |     |                   |   |   |   |    |
| 43              |               | O |   |                                    |     | O   |     |    |                      |    | O  |    |     |                   |   |   |   |    |
| *44             |               | O |   |                                    |     | O   |     |    |                      |    | O  |    |     |                   |   |   |   | O  |
| 45              |               | O |   |                                    |     |     | O   |    | O                    |    |    |    |     |                   |   |   |   |    |
| *70             |               | O |   | O                                  |     |     |     |    |                      |    |    |    | O   |                   |   | O |   |    |
| 5               | F2            | O |   | O                                  |     |     |     |    |                      |    | O  |    |     | O                 |   |   |   |    |
| 9               |               | O |   | O                                  |     |     |     |    |                      |    |    |    | O   |                   |   |   | O |    |
| 21              |               | O |   |                                    | O   |     |     |    |                      |    | O  |    |     |                   |   | O |   |    |
| 22              |               | O |   | O                                  |     |     |     |    |                      |    |    | O  |     |                   |   | O |   |    |
| 23              |               | O |   |                                    |     |     | O   |    |                      |    | O  |    |     |                   |   |   |   | O  |
| 24              |               | O |   | O                                  |     |     |     |    |                      |    | O  |    |     |                   |   | O |   |    |
| 28              |               | O |   | O                                  |     |     |     |    |                      |    | O  |    |     |                   |   | O |   |    |
| 36              |               | O |   |                                    |     |     |     | O  | O                    |    |    |    |     |                   |   | O |   |    |
| 37              |               | O |   |                                    |     |     | O   |    | O                    |    |    |    |     |                   |   |   |   |    |
| 38              |               | O |   |                                    |     | O   |     |    |                      |    | O  |    |     |                   |   |   |   |    |
| 40              |               | O |   |                                    | O   |     |     |    |                      |    | O  |    |     |                   |   |   |   |    |
| *46             |               | O |   |                                    | O   |     |     |    | O                    |    |    |    |     |                   |   | O |   |    |
| 48              |               | O |   | O                                  |     |     |     |    |                      |    | O  |    |     |                   |   | O |   |    |
| 49              |               | O |   |                                    | O   |     |     |    |                      |    | O  |    |     |                   |   | O |   |    |
| 50              |               | O |   |                                    |     | O   |     |    |                      |    | O  |    |     |                   |   |   |   |    |
| 51              |               | O |   | O                                  |     |     |     |    |                      |    | O  |    |     |                   |   | O |   |    |
| 52              |               | O |   | O                                  |     |     |     |    | O                    |    |    |    |     |                   |   | O |   |    |
| 53              |               | O |   | O                                  |     |     |     |    |                      |    |    | O  |     |                   |   | O |   |    |
| 54              |               | O |   | O                                  |     |     |     |    | O                    |    |    |    |     |                   |   | O |   |    |
| 55              |               | O |   | O                                  |     |     |     |    |                      |    | O  |    |     |                   |   | O |   |    |
| 56              |               | O |   | O                                  |     |     |     |    |                      |    | O  |    |     |                   |   | O |   |    |
| 60              |               | O |   | O                                  |     |     |     |    |                      |    | O  |    |     |                   |   | O |   |    |
| 61              |               | O |   | O                                  |     |     |     |    |                      |    |    |    | O   |                   |   | O |   |    |
| 62              |               | O |   | O                                  |     |     |     |    |                      |    |    |    | O   |                   |   | O |   |    |
| 63              |               | O |   | O                                  |     |     |     |    |                      |    |    | O  |     |                   |   | O |   |    |
| 64              |               | O |   |                                    | O   |     |     |    |                      |    | O  |    |     |                   |   |   |   |    |
| 65              |               | O |   | O                                  |     |     |     |    | O                    |    |    |    |     |                   |   | O |   |    |
| *92             |               | O |   |                                    | O   |     |     |    |                      |    | O  |    |     |                   |   | O |   |    |
| *93             |               | O |   |                                    | O   |     |     |    | O                    |    |    |    |     |                   |   | O |   |    |
| *94             |               | O |   |                                    | O   |     |     |    | O                    |    |    |    |     |                   |   | O |   |    |

\*Flame-retardant treatment

## Code

F - Fabric

1 - Uncoated, 2 - Coated, 3 - Leather

R - Rug

1 - Unpadded, 2 - Padded

S - Sheet, L - Laminate, A - Assembly

1 - Flexible, 2 - Semi-rigid, 3 - Rigid

## Class

I Burned less than 12 inches.

X Burned full length.

Note (1) Measured after 12-second burner removed.

(2) Sample only 8 inches long.

TABLE II (Continued)

## DATA SUMMARY FOR VERTICAL TESTS - METHOD 5902

| Material<br>No. | Class<br>Code | I  | X  | Flaming Time <sup>(1)</sup> (min.) |     |     |     |    | Burn Rate (in./min.) |    |    |    |     | Burn Length (in.) |    |    |    |    |
|-----------------|---------------|----|----|------------------------------------|-----|-----|-----|----|----------------------|----|----|----|-----|-------------------|----|----|----|----|
|                 |               |    |    | 0                                  | 0.5 | 1.0 | 2.0 | 2+ | 0                    | 10 | 20 | 30 | 30+ | 0                 | 3  | 6  | 9  | 12 |
| 67              | F3            | O  |    |                                    |     | O   |     |    |                      | O  |    |    |     |                   |    |    | O  |    |
| 89              |               | O  |    |                                    |     |     | O   |    |                      | O  |    |    |     |                   |    |    |    |    |
| 1               | R1            | O  |    |                                    | O   |     |     |    |                      | O  |    |    |     |                   | O  |    |    |    |
| 12              |               | O  |    |                                    |     |     |     | O  |                      | O  |    |    |     |                   |    |    |    |    |
| 26              |               | O  |    |                                    |     |     |     | O  |                      | O  |    |    |     |                   |    |    |    |    |
| 41              |               | O  |    |                                    |     |     |     | O  |                      | O  |    |    |     |                   |    |    |    |    |
| 100             |               | O  |    |                                    | O   |     |     |    |                      | O  |    |    |     |                   | O  |    |    |    |
| 27              | R2            |    | O  |                                    |     |     |     | O  |                      | O  |    |    |     |                   |    |    |    |    |
| 99              |               | O  |    |                                    | O   |     |     |    |                      | O  |    |    |     |                   | O  |    |    |    |
| 10              | S1            | O  |    |                                    | O   |     |     |    |                      |    |    | O  |     |                   |    |    | O  |    |
| 47              |               | O  |    |                                    |     | O   |     |    |                      |    | O  |    |     |                   |    |    |    |    |
| 66              |               | O  |    | O                                  |     |     |     |    |                      |    |    | O  |     |                   |    | O  |    |    |
| 68              |               | O  |    |                                    |     | O   |     |    |                      |    | O  |    |     |                   |    |    |    | O  |
| 95              |               | O  |    | O                                  |     |     |     |    |                      |    | O  |    |     |                   | O  |    |    |    |
| 96              |               | O  |    | O                                  |     |     |     |    |                      |    | O  |    |     |                   | O  |    |    |    |
| 97              |               | O  |    |                                    | O   |     |     |    |                      |    | O  |    |     |                   | O  |    |    |    |
| 98              |               | O  |    |                                    | O   |     |     |    |                      |    | O  |    |     |                   |    | O  |    |    |
| 107             |               | O  |    |                                    | O   |     |     |    |                      |    | O  |    |     |                   | O  |    |    |    |
| 108             |               | O  |    | O                                  |     |     |     |    |                      | O  |    |    |     |                   | O  |    |    |    |
| *109(2)         |               | O  |    |                                    |     |     | O   |    |                      | O  |    |    |     |                   |    |    | O  |    |
| 35              | S2            |    | O  |                                    |     |     | O   |    |                      | O  |    |    |     |                   |    |    |    |    |
| 69              |               | O  |    | O                                  |     |     |     |    |                      | O  |    |    |     |                   | O  |    |    |    |
| 11              | S3            | O  |    |                                    | O   |     |     |    |                      | O  |    |    |     |                   | O  |    |    |    |
| *30             |               | O  |    | O                                  |     |     |     |    |                      | O  |    |    |     |                   | O  |    |    |    |
| *31             |               | O  |    | O                                  |     |     |     |    |                      | O  |    |    |     |                   | O  |    |    |    |
| 32              |               | O  |    |                                    |     |     |     | O  |                      | O  |    |    |     |                   |    |    |    |    |
| *33             |               | O  |    |                                    |     |     |     | O  |                      | O  |    |    |     |                   |    |    |    |    |
| 34              |               | O  |    | O                                  |     |     |     |    |                      | O  |    |    |     |                   | O  |    |    |    |
| 77              |               | O  |    |                                    |     |     |     | O  |                      | O  |    |    |     |                   |    |    |    |    |
| 25              | L1            | O  |    |                                    | O   |     |     |    |                      | O  |    |    |     |                   | O  |    |    |    |
| 29              |               | O  |    | O                                  |     |     |     |    |                      |    |    | O  |     |                   |    | O  |    |    |
| 57              |               | O  |    | O                                  |     |     |     |    |                      |    |    |    | O   |                   |    |    | O  |    |
| 58              | L2            | O  |    | O                                  |     |     |     |    |                      |    | O  |    |     |                   |    | O  |    |    |
| 59              |               | O  |    | O                                  |     |     |     |    |                      |    |    | O  |     |                   |    | O  |    |    |
| 85              | L3            | O  |    | O                                  |     |     |     |    |                      | O  |    |    |     |                   | O  |    |    |    |
| 86              |               | O  |    | O                                  |     |     |     |    |                      | O  |    |    |     |                   | O  |    |    |    |
| 87              |               | O  |    | O                                  |     |     |     |    |                      | O  |    |    |     |                   | O  |    |    |    |
| 88              |               | O  |    | O                                  |     |     |     |    |                      | O  |    |    |     |                   | O  |    |    |    |
| 76              | A             | O  |    | O                                  |     |     |     |    |                      | O  |    |    |     |                   | O  |    |    |    |
| 80              |               | O  |    |                                    | O   |     |     |    |                      | O  |    |    |     |                   | O  |    |    |    |
| 81              |               | O  |    |                                    |     | O   |     |    |                      | O  |    |    |     |                   | O  |    |    |    |
| 82              |               | O  |    |                                    | O   |     |     |    |                      | O  |    |    |     |                   | O  |    |    |    |
| 83              |               | O  |    |                                    | O   |     |     |    |                      | O  |    |    |     |                   | O  |    |    |    |
| 84              |               | O  |    |                                    | O   |     |     |    |                      | O  |    |    |     |                   | O  |    |    |    |
| Total           | 93            | 67 | 26 | 37                                 | 22  | 11  | 14  | 9  | 12                   | 39 | 28 | 7  | 7   | 12                | 25 | 17 | 10 | 4  |

\*Flame-retardant treatment

Code

F - Fabric

1 - Uncoated, 2 - Coated, 3 - Leather

R - Rug

1 - Unpadded, 2 - Padded

S - Sheet, L - Laminate, A - Assembly

1 - Flexible, 2 - Semi-rigid, 3 - Rigid

Class

I Burned less than 12 inches.

X Burned full length.

Note (1) Measured after 12-second burner removed.

(2) Sample only 8 inches long.

TABLE III  
DATA SUMMARY FOR RADIANT PANEL TESTS

| Material<br>No. Code | Flame Spread Index - I <sub>s</sub> |           |           |            |             |      | Smoke Factor - (mg.) |             |             |             |      | Burn Rate (Initial<br>3" Length) (in./min.) |          |           |     |
|----------------------|-------------------------------------|-----------|-----------|------------|-------------|------|----------------------|-------------|-------------|-------------|------|---------------------------------------------|----------|-----------|-----|
|                      | 0-<br>10                            | 10-<br>30 | 30-<br>50 | 50-<br>100 | 100-<br>300 | 300+ | 0-<br>0.5            | 0.5-<br>1.0 | 1.0-<br>2.0 | 2.0-<br>3.0 | 3.0+ | 0-<br>5                                     | 5-<br>10 | 10-<br>25 | 25+ |
| 2 F1                 |                                     | O         |           |            |             |      | O                    |             |             |             |      | O                                           |          |           |     |
| 3                    | O                                   |           |           |            |             |      | O                    |             |             |             |      | O                                           |          |           |     |
| 4                    | O                                   |           |           |            |             |      | C                    |             |             |             |      | O                                           |          |           |     |
| 6                    |                                     |           |           |            | O           |      |                      | O           |             |             |      | -                                           |          |           |     |
| 7                    |                                     |           |           |            |             | O    |                      | O           |             |             |      | -                                           |          |           |     |
| 8                    |                                     |           |           |            | O           |      |                      |             |             |             | O    | -                                           |          |           |     |
| 13                   |                                     |           |           |            | O           |      |                      | O           |             |             |      |                                             |          | O         |     |
| 14                   |                                     |           |           |            | O           |      | O                    |             |             |             |      |                                             |          | O         |     |
| 15                   |                                     |           | O         |            |             |      |                      |             |             | O           |      |                                             |          | O         |     |
| 16                   |                                     |           | O         |            |             |      | O                    |             |             |             |      |                                             |          | O         |     |
| 17                   |                                     |           |           |            | O           |      |                      |             | O           |             |      |                                             |          | O         |     |
| 18                   |                                     |           |           | O          |             |      |                      | O           |             |             |      |                                             |          | O         |     |
| 19                   |                                     | O         |           |            |             |      | O                    |             |             |             |      |                                             | O        |           |     |
| 20                   | O                                   |           |           |            |             |      | O                    |             |             |             |      | O                                           |          |           |     |
| *42                  |                                     |           |           |            | O           |      |                      |             | O           |             |      |                                             | O        |           |     |
| 43                   |                                     |           |           |            |             | O    | O                    |             |             |             |      |                                             |          |           | O   |
| *44                  |                                     |           |           |            | O           |      |                      |             | O           |             |      |                                             |          | O         |     |
| 45                   |                                     |           |           |            | O           |      |                      | O           |             |             |      |                                             |          | O         |     |
| *70                  |                                     | O         |           |            |             |      | -                    |             |             |             |      |                                             | O        |           |     |
| 5 F2                 |                                     |           |           |            | O           |      |                      |             |             | O           |      | -                                           |          |           |     |
| 9                    | O                                   |           |           |            |             |      | O                    |             |             |             |      | -                                           |          |           |     |
| 21                   |                                     |           |           | O          |             |      |                      |             | O           |             |      |                                             |          | O         |     |
| 22                   |                                     | O         |           |            |             |      |                      | O           |             |             |      |                                             |          | O         |     |
| 23                   |                                     |           |           |            |             | O    |                      |             |             | O           |      |                                             |          | O         |     |
| 24                   |                                     |           | O         |            |             |      |                      |             |             | O           |      |                                             | O        |           |     |
| 28                   | O                                   |           |           |            |             |      |                      | O           |             |             |      | O                                           |          |           |     |
| 36                   |                                     |           |           | O          |             |      |                      |             |             |             | O    |                                             |          | O         |     |
| 37                   |                                     |           |           |            |             | O    |                      |             |             |             | O    |                                             |          |           | O   |
| 38                   |                                     |           |           |            |             | O    |                      |             |             |             | O    |                                             |          |           | O   |
| 40                   |                                     |           |           |            |             | O    |                      |             | O           |             |      |                                             |          |           | O   |
| *46                  |                                     |           |           | O          |             |      |                      |             |             |             | O    | O                                           |          |           |     |
| 48                   |                                     |           | O         |            |             |      |                      |             | O           |             |      | O                                           |          |           |     |
| 49                   |                                     |           |           |            | O           |      |                      |             |             | O           |      |                                             |          | O         |     |
| 50                   |                                     |           |           |            |             | O    |                      |             | O           |             |      |                                             |          | O         |     |
| 51                   |                                     |           |           | O          |             |      |                      |             | O           |             |      |                                             | O        |           |     |
| 52                   |                                     |           | O         |            |             |      |                      | O           |             |             |      |                                             | O        |           |     |
| 53                   |                                     |           | O         |            |             |      |                      | O           |             |             |      | O                                           |          |           |     |
| 54                   |                                     |           |           | O          |             |      |                      |             | O           |             |      | O                                           |          |           |     |
| 55                   |                                     |           |           |            |             | O    |                      |             |             |             | O    | O                                           |          |           |     |
| 56                   |                                     |           |           |            | O           |      |                      | O           |             |             |      |                                             |          |           | O   |
| 60                   |                                     |           | O         |            |             |      |                      |             |             | O           |      |                                             |          | O         |     |
| 61                   | O                                   |           |           |            |             |      | O                    |             |             |             |      | -                                           |          |           |     |
| 62                   | O                                   |           |           |            |             |      | O                    |             |             |             |      | -                                           |          |           |     |
| 63                   | O                                   |           |           |            |             |      | O                    |             |             |             |      | -                                           |          |           |     |
| 64                   |                                     |           |           |            |             | O    |                      |             | O           |             |      |                                             |          |           | O   |
| 65                   | O                                   |           |           |            |             |      |                      |             | O           |             |      | -                                           |          |           |     |
| 67 F3                |                                     |           |           |            | O           |      | O                    |             |             |             |      |                                             | O        |           |     |
| 89                   |                                     |           |           |            | O           |      |                      | O           |             |             |      |                                             |          | O         |     |
| 1 R1                 | O                                   |           |           |            |             |      |                      |             | O           |             |      | O                                           |          |           |     |
| 12                   |                                     |           |           |            |             | O    |                      |             | O           |             |      |                                             | O        |           |     |
| 26                   |                                     |           |           |            | O           |      |                      |             |             | O           |      | O                                           |          |           |     |
| 41                   |                                     |           |           |            | O           |      |                      |             |             |             | O    | O                                           |          |           |     |

\*Flame-retardant treatment

- Complete information not available

Code: F - Fabric

R - Rug

S - Sheet, L - Laminate, A - Assembly

1 - Uncoated, 2 - Coated,

1 - Unpadded

1 - Flexible, 2 - Semi-rigid,

3 - Leather

2 - Padded

3 - Rigid

TABLE III (Continued)

## DATA SUMMARY FOR RADIANT PANEL TESTS

| Material<br>No. Code | Flame Spread Index - I <sub>g</sub> |           |           |            |             |              | Smoke Factor - (mg.) |             |             |             |              | Burn Rate (Initial<br>3" Length) (in. /min.) |          |           |            |
|----------------------|-------------------------------------|-----------|-----------|------------|-------------|--------------|----------------------|-------------|-------------|-------------|--------------|----------------------------------------------|----------|-----------|------------|
|                      | 0-<br>10                            | 10-<br>30 | 30-<br>50 | 50-<br>100 | 100-<br>300 | 300+<br>300+ | 0-<br>0.5            | 0.5-<br>1.0 | 1.0-<br>2.0 | 2.0-<br>3.0 | 3.0+<br>3.0+ | 0-<br>5                                      | 5-<br>10 | 10-<br>25 | 25+<br>25+ |
| 27 R2                |                                     |           |           |            | O           |              |                      |             |             | O           |              | O                                            |          |           |            |
| 10 S1                |                                     |           |           |            | O           |              |                      | O           |             |             |              | -                                            |          |           |            |
| 47                   |                                     |           |           |            | O           |              |                      |             | O           |             |              |                                              |          |           | O          |
| 66                   |                                     |           | O         |            |             |              |                      |             | O           |             |              |                                              |          | O         |            |
| 68                   |                                     |           |           |            | O           |              | O                    |             |             |             |              |                                              |          |           | O          |
| 90                   |                                     |           |           |            | O           |              |                      |             |             |             | O            |                                              | O        |           |            |
| 91                   |                                     |           |           |            | O           |              | -                    |             |             |             |              |                                              |          | O         |            |
| 95                   |                                     | O         |           |            |             |              | O                    |             |             |             |              |                                              |          | O         |            |
| 96                   |                                     |           |           |            | O           |              | -                    |             |             |             |              | O                                            |          |           |            |
| 97                   |                                     |           |           | O          |             |              | -                    |             |             |             |              |                                              |          | O         |            |
| 98                   |                                     |           |           |            | O           |              | -                    |             |             |             |              |                                              | O        |           |            |
| 107                  | O                                   |           |           |            |             |              |                      | O           |             |             |              | -                                            |          |           |            |
| 108                  | O                                   |           |           |            |             |              |                      | O           |             |             |              | -                                            |          |           |            |
| *109                 |                                     |           | O         |            |             |              |                      |             |             |             | O            |                                              |          | O         |            |
| 35 S2                |                                     | O         |           |            |             |              |                      |             |             | O           |              |                                              | O        |           |            |
| 69                   | O                                   |           |           |            |             |              |                      |             |             |             | O            | -                                            |          |           |            |
| 11 S3                |                                     |           |           | O          |             |              |                      | O           |             |             |              |                                              |          | O         |            |
| *30                  |                                     |           |           | O          |             |              |                      |             |             |             | O            |                                              | O        |           |            |
| *31                  |                                     |           | O         |            |             |              |                      |             |             |             | O            | O                                            |          |           |            |
| 32                   |                                     |           |           | O          |             |              |                      |             |             |             | O            |                                              | O        |           |            |
| *33                  |                                     |           |           | O          |             |              |                      |             |             | O           |              |                                              | O        |           |            |
| 34                   |                                     |           | O         |            |             |              |                      |             |             |             | O            | O                                            |          |           |            |
| 77                   |                                     |           |           |            | O           |              |                      |             |             |             | O            | O                                            |          |           |            |
| 25 L1                |                                     |           |           |            | O           |              |                      |             |             |             | O            |                                              | O        |           |            |
| 29                   |                                     |           | O         |            |             |              |                      |             |             |             | O            |                                              |          | O         |            |
| 57                   |                                     |           |           |            | O           |              |                      |             | O           |             |              |                                              |          |           | O          |
| 39 L2                |                                     |           | O         |            |             |              |                      |             |             | O           |              |                                              | O        |           |            |
| 58                   |                                     | O         |           |            |             |              |                      |             | O           |             |              |                                              | O        |           |            |
| 59                   |                                     | O         |           |            |             |              |                      |             |             | O           |              |                                              | O        |           |            |
| 85 L3                |                                     | O         |           |            |             |              |                      |             | O           |             |              |                                              |          | O         |            |
| 86                   |                                     | O         |           |            |             |              |                      |             | O           |             |              |                                              | O        |           |            |
| 87                   |                                     | O         |           |            |             |              |                      | O           |             |             |              |                                              |          | O         |            |
| 88                   | O                                   |           |           |            |             |              | O                    |             |             |             |              | -                                            |          |           |            |
| 71 A                 | O                                   |           |           |            |             |              |                      | O           |             |             |              | -                                            |          |           |            |
| 72                   |                                     | O         |           |            |             |              |                      | O           |             |             |              |                                              | O        |           |            |
| 73                   |                                     |           |           |            | O           |              |                      |             |             |             | O            |                                              | O        |           |            |
| 74                   |                                     |           | O         |            |             |              |                      |             |             | O           |              |                                              | O        |           |            |
| 75                   |                                     | O         |           |            |             |              |                      |             | O           |             |              | -                                            |          |           |            |
| 76                   |                                     |           |           | O          |             |              |                      |             |             |             | O            | O                                            |          |           |            |
| 78                   |                                     |           |           |            | O           |              |                      |             |             |             | O            |                                              | O        |           |            |
| 79                   |                                     |           | O         |            |             |              |                      |             |             |             | O            | -                                            |          |           |            |
| 80                   |                                     |           |           | O          |             |              |                      |             |             |             | O            |                                              | O        |           |            |
| 81                   |                                     |           |           | O          |             |              |                      |             |             |             | O            | O                                            |          |           |            |
| 82                   |                                     |           |           | O          |             |              |                      |             |             |             | O            | O                                            |          |           |            |
| 83                   |                                     |           | O         |            |             |              |                      |             |             |             | O            | O                                            |          |           |            |
| 84                   |                                     |           |           | O          |             |              |                      |             |             |             | O            |                                              | O        |           |            |
| Total 98             | 15                                  | 13        | 16        | 16         | 24          | 14           | 16                   | 18          | 20          | 13          | 26           | 23                                           | 24       | 25        | 9          |

\*Flame-retardant treatment

- Complete information not available

Code: F - Fabric

1 - Uncoated, 2 - Coated,  
3 - Leather

R - Rug

1 - Unpadded  
2 - Padded

S - Sheet, L - Laminate, A - Assembly

1 - Flexible, 2 - Semi-rigid,  
3 - Rigid

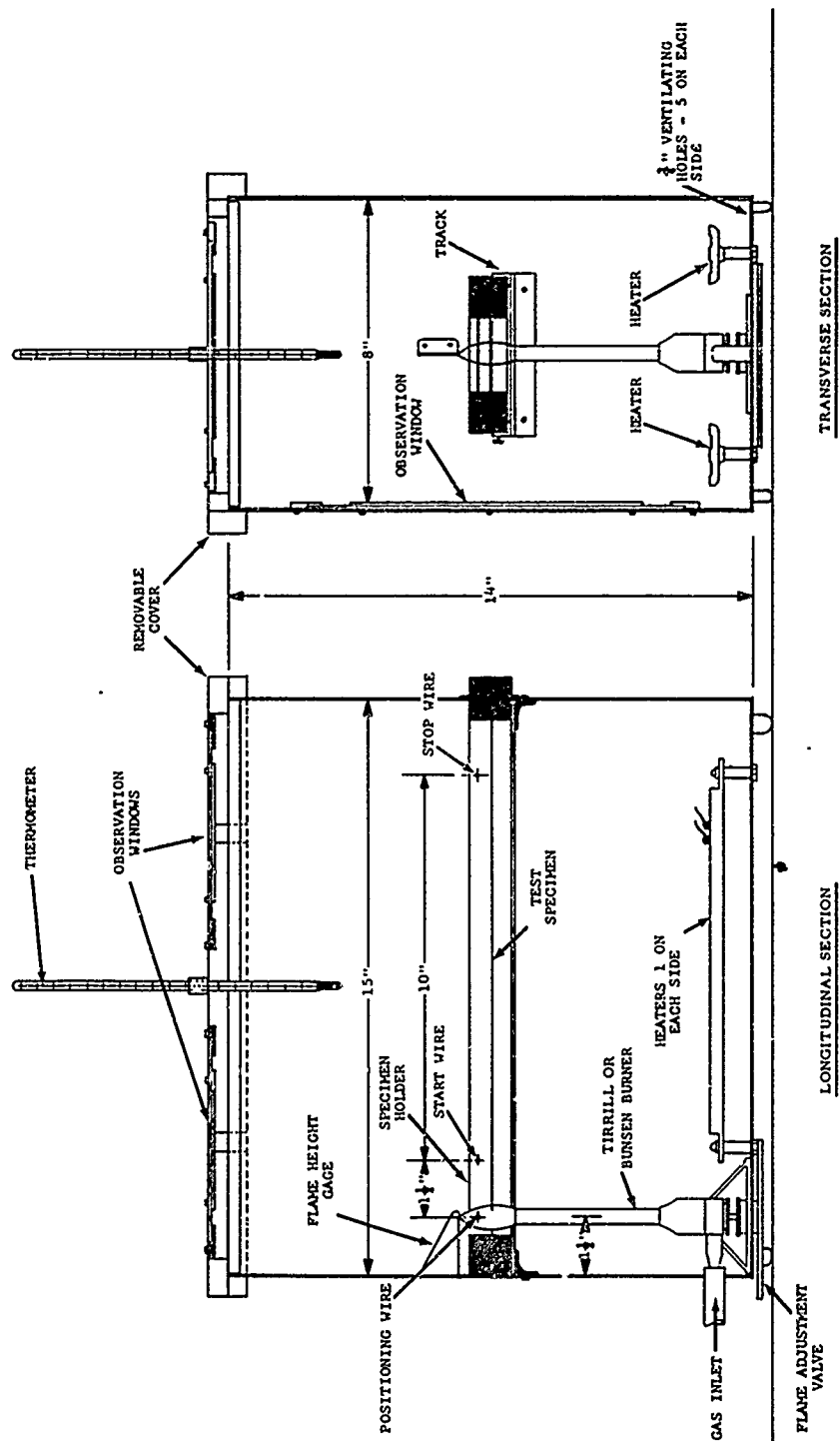


FIG. 1 HORIZONTAL RATE OF BURNING APPARATUS

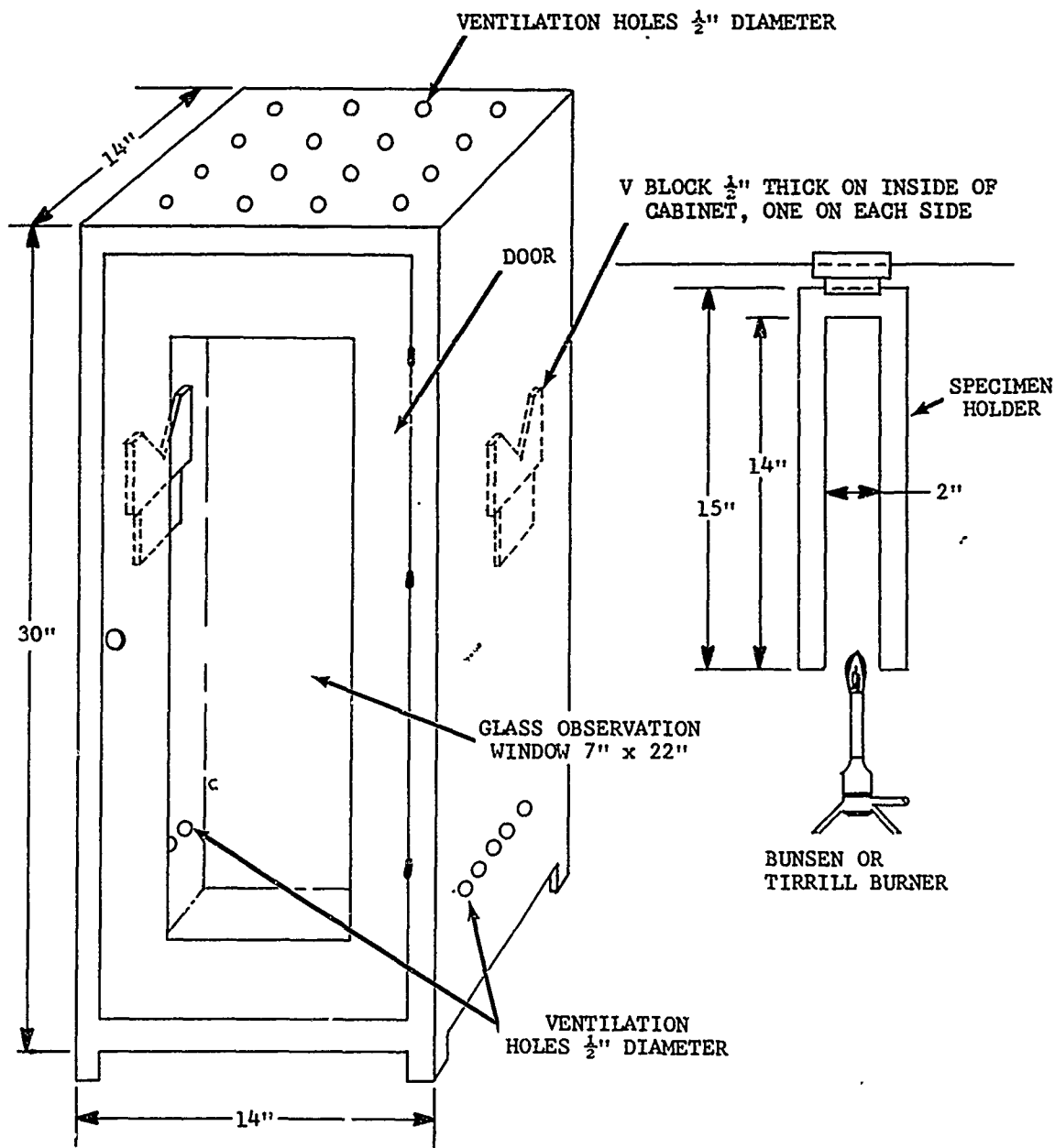


FIG. 2 VERTICAL RATE OF BURNING APPARATUS

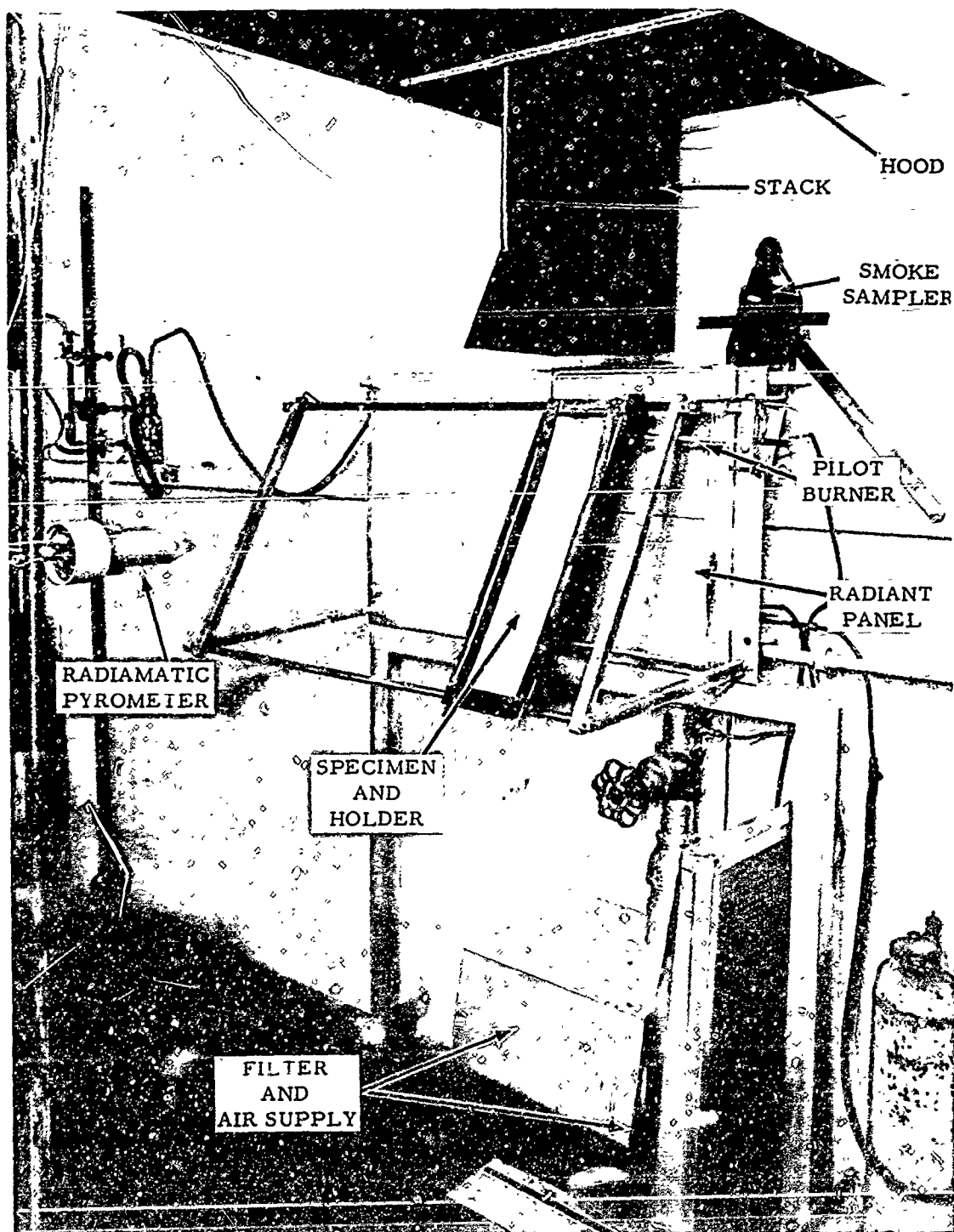
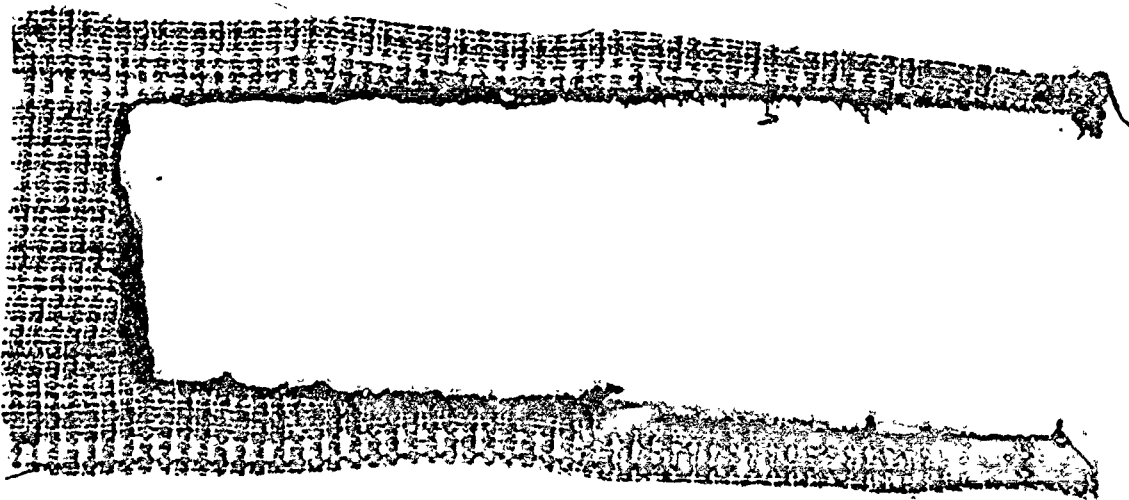


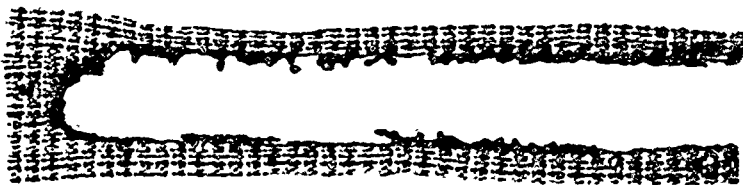
FIG. 3 RADIANT PANEL FLAME-SPREAD APPARATUS (ASSEMBLY)

RADIANT PANEL

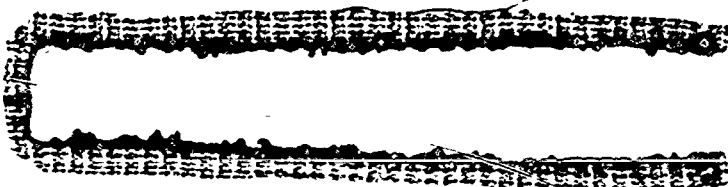
TEST



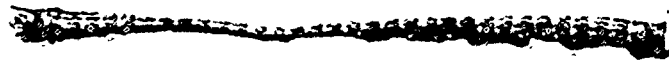
HORIZONTAL TEST  
FSS 453



HORIZONTAL TEST  
5906



VERTICAL TEST  
5902



RADIANT PANEL  
TEST

HORIZONTAL TEST HORIZONTAL TEST VERTICAL TEST  
FSS 453 5906 5902

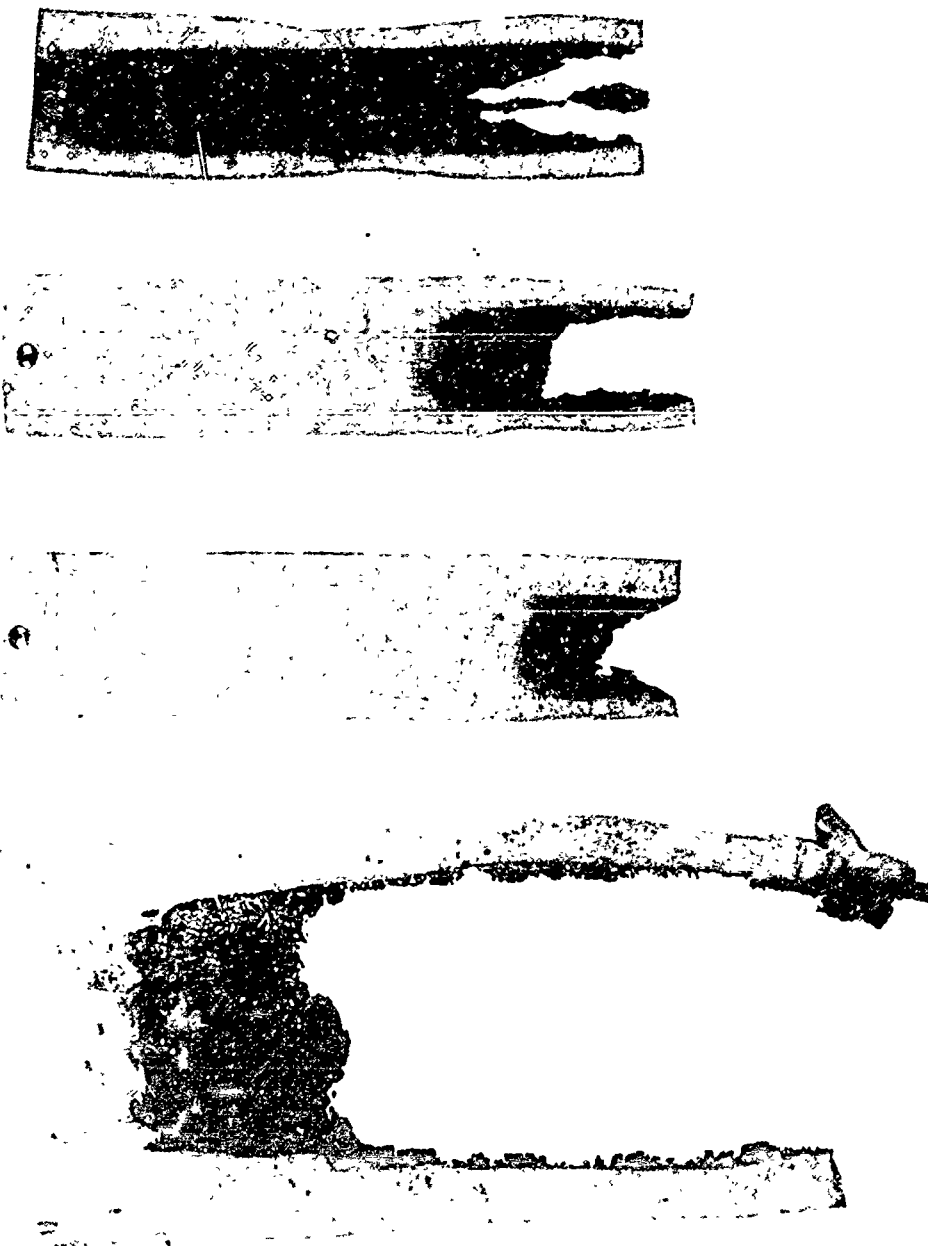


FIG. 5 LOW FLAMMABLE MATERIAL

APPENDIX 1  
MATERIALS DESCRIPTION

# MATERIALS DESCRIPTION

| <u>No.</u> | <u>Code</u> | <u>Sample Thickness</u><br>(in.) | <u>Weight</u><br>(lb./sq.yd.) | <u>Designation</u> | <u>Use</u>                   | <u>Composition</u>                       |
|------------|-------------|----------------------------------|-------------------------------|--------------------|------------------------------|------------------------------------------|
| 1          | R1          | 0.21                             | 2.44                          | Rug (UP)           | Flooring                     | Wool backed by Cotton with Neoprene base |
| 2          | F1          | 0.025                            | 0.54                          | Fabric (UC)        | Drapery                      | Nylon                                    |
| 3          | F1          | 0.005                            | 0.11                          | Fabric (UC)        | Curtain                      | Acron                                    |
| 4          | F1          | 0.006                            | 0.12                          | Fabric (UC)        | Curtain - liner              | Dacron                                   |
| 5          | F2          | 0.020                            | 1.11                          | Fabric (C)         | Upholstery                   | Vinyl backed by Cotton                   |
| 6          | F1          | 0.018                            | 0.66                          | Fabric (UC)        | Upholstery                   |                                          |
| 7          | F1          | 0.031                            | 0.66                          | Fabric (UC)        | Upholstery                   |                                          |
| 8          | F1          | 0.034                            | 1.20                          | Fabric (UC)        | Upholstery                   | Nylon                                    |
| 9          | F2          | 0.012                            | 0.65                          | Fabric (C)         | Ceiling                      | Vinyl backed by Dynel                    |
| 10         | S1          | 0.010                            | 0.66                          | Sheet (F)          | Panel and Door covering      | Vinyl                                    |
| 11         | S3          | 0.030                            | 1.97                          | Sheet (R)          | Bulkhead and Galley covering | Melamine backed by Phenol                |
| 12         | R1          | 0.30                             | 3.6                           | Rug (UP)           | Flooring                     | Acrilan backed by Furane resin           |
| 13         | F1          | 0.030                            | 0.86                          | Fabric (UC)        | holstery                     | Nylon, Cotton, Viscose and Metal         |

MATERIALS DESCRIPTION (Continued)

| <u>No.</u> | <u>Code</u> | <u>Thickness</u><br>(in.) | <u>Sample</u><br><u>Weight</u><br>(lb./sq.yd.) | <u>Designation</u> | <u>Use</u>                           | <u>Composition</u>        |
|------------|-------------|---------------------------|------------------------------------------------|--------------------|--------------------------------------|---------------------------|
| 14         | F1          | 0.020                     | 0.63                                           | Fabric (UC)        | Drapery in Coat<br>Compartment       | Nylon and Metal           |
| 15         | F1          | 0.027                     | 0.60                                           | Fabric (UC)        | Upholstery                           | Nylon                     |
| 16         | F1          | 0.025                     | 0.63                                           | Fabric (UC)        | Upholstery                           | Nylon                     |
| 17         | F1          | 0.026                     | 0.73                                           | Fabric (UC)        | Upholstery                           | Nylon, Cotton and Metal   |
| 18         | F1          | 0.030                     | 0.73                                           | Fabric (UC)        | Upholstery                           | Nylon                     |
| 19         | F1          | 0.020                     | 0.57                                           | Fabric (UC)        | Curtain -<br>window                  | Nylon                     |
| 20         | F1          | 0.020                     | 0.60                                           | Fabric (UC)        | Drapery -<br>coat and galley         | Nylon                     |
| 21         | F2          | 0.015                     | 0.73                                           | Fabric (C)         | Ceiling -<br>lavatory                | Vinyl backed by Cotton    |
| 22         | F2          | 0.008                     | 0.60                                           | Fabric (C)         | Lining - wall                        | Vinyl backed by Fiberglas |
| 23         | F2          | 0.022                     | 1.01                                           | Fabric (C)         | Upholstery -<br>seat and arm<br>rest | Vinyl backed by Cotton    |

MATERIALS DESCRIPTION (Continued)

| No. | Code | Sample             |                        | Designation  | Use                                   | Composition                                     |
|-----|------|--------------------|------------------------|--------------|---------------------------------------|-------------------------------------------------|
|     |      | Thickness<br>(in.) | Weight<br>(lb./sq.yd.) |              |                                       |                                                 |
| 24  | F2   | 0.017              | 1.01                   | Fabric (C)   | Lining - wall<br>and ceiling          | Vinyl backed by Cotton                          |
| 25  | L1   | 0.30               | 5.48                   | Laminate (F) | Flooring -<br>under seats             | Vinyl backed by Fiberglas<br>on Foam pad (1/4") |
| 26  | R1   | 0.21               | 3.22                   | Rug (UP)     | Flooring                              | Wool                                            |
| 27  | R2   | 0.36               | 3.82                   | Rug (P)      | Flooring                              | Wool backed by Foam<br>pad (3/16")              |
| 28  | F2   | 0.012              | 0.66                   | Fabric (C)   |                                       | Vinyl backed by Fiberglas                       |
| 29  | L1   | 0.17               | 2.19                   | Laminate (F) |                                       | Vinyl backed by Fiberglas<br>on Foam pad (1/8") |
| 30  | S3   | 0.19               | 11.7                   | Sheet (R)    | Window frames,<br>Food tray,<br>etc . | Vinyl (3/16")                                   |
| 31  | S3   | 0.09               | 5.50                   | Sheet (R)    |                                       | Vinyl (3/32")                                   |
| 32  | S3   | 0.063              | 3.58                   | Sheet (R)    |                                       | Vinyl (1/16")                                   |
| 33  | S3   | 0.057              | 3.55                   | Sheet (R)    |                                       | Vinyl (1/16")                                   |

MATERIALS DESCRIPTION (Continued)

| <u>No.</u> | <u>Code</u> | <u>Sample Thickness</u><br>(in.) | <u>Weight</u><br>(lb./sq.yd.) | <u>Designation</u> | <u>Use</u>                    | <u>Composition</u>                              |
|------------|-------------|----------------------------------|-------------------------------|--------------------|-------------------------------|-------------------------------------------------|
| 34         | S3          | 0.043                            | 2.63                          | Sheet (R)          |                               | Vinyl (3/64")                                   |
| 35         | S2          | 0.021                            | 1.09                          | Sheet (SR)         | Paneling                      | Resin-filled Cotton                             |
| 36         | F2          | 0.020                            | 1.20                          | Fabric (C)         | Paneling                      | Vinyl backed by Nylon -<br>both sides coated    |
| 37         | F2          | 0.060                            | 1.93                          | Fabric (C)         | Upholstery                    | Vinyl backed by Cotton                          |
| 38         | F2          | 0.045                            | 1.09                          | Fabric (C)         | Upholstery                    | Vinyl backed by Cotton                          |
| 39         | L2          | 0.036                            | 2.73                          | Laminate (SR)      | Lining - cargo<br>compartment | Vinyl backed by Fiberglas -<br>Polyester filler |
| 40         | F2          | 0.025                            | 0.98                          | Fabric (C)         |                               | Vinyl backed by Cotton                          |
| 41         | R1          | 0.24                             | 3.39                          | Rug (UP)           | Flooring                      | Nylon, Dacron                                   |
| 42         | F1          | 0.040                            | 0.98                          | Fabric (UC)        | Upholstery                    | Nylon, Viscose                                  |
| 43         | F1          | 0.030                            | 0.86                          | Fabric (UC)        | Curtain                       | Cotton, Mohair, Viscose,<br>Metal               |
| 44         | F1          | 0.025                            | 0.73                          | Fabric (UC)        |                               | Nylon, Viscose, Metal                           |

MATERIALS DESCRIPTION (Continued)

| <u>No.</u> | <u>Code</u> | <u>Sample Thickness</u><br>(in.) | <u>Weight</u><br>(lb./sq.yd.) | <u>Designation</u> | <u>Use</u>                              | <u>Composition</u>         |
|------------|-------------|----------------------------------|-------------------------------|--------------------|-----------------------------------------|----------------------------|
| 45         | F1          | 0.060                            | 0.79                          | Fabric (UC)        | Upholstery                              | Nylon, Cotton, Dacron      |
| 46         | F2          | 0.034                            | 1.65                          | Fabric (C)         | Upholstery - seat                       | Vinyl backed by Cotton     |
| 47         | S1          | 0.011                            | 0.73                          | Sheet (F)          | Covering - aluminum panel               | Vinyl                      |
| 48         | F2          | 0.020                            | 1.52                          | Fabric (C)         | Covering - wall                         | Vinyl backed by Cotton     |
| 49         | F2          | 0.020                            | 1.49                          | Fabric (C)         | Covering - wall                         | Vinyl backed by Cotton     |
| 50         | F2          | 0.033                            | 1.30                          | Fabric (C)         | Covering - wall                         | Vinyl backed by Cotton     |
| 51         | F2          | 0.010                            | 0.63                          | Fabric (C)         | Headlining, Ceiling and Entrance lining | Vinyl backed by Fiberglass |
| 52         | F2          | 0.013                            | 0.89                          | Fabric (C)         | Lining - entrance                       | Vinyl backed by Fiberglass |
| 53         | F2          | 0.017                            | 3.20                          | Fabric (C)         | Lining - entrance and door              | Vinyl backed by Fiberglass |
| 54         | F2          | 0.022                            | 1.20                          | Fabric (C)         | Mainscotting, Partition and Seat panels | Vinyl backed by Fiberglass |

MATERIALS DESCRIPTION (Continued)

| <u>No.</u> | <u>Code</u> | <u>Sample Thickness</u><br>(in.) | <u>Weight</u><br>(lb./sq.yd.) | <u>Designation</u> | <u>Use</u>                                           | <u>Composition</u>                  |
|------------|-------------|----------------------------------|-------------------------------|--------------------|------------------------------------------------------|-------------------------------------|
| 55         | F2          | 0.029                            | 1.80                          | Fabric (C)         | Covering -<br>table top                              | Vinyl backed by Fiberglas           |
| 56         | F2          | 0.010                            | 0.57                          | Fabric (C)         | Headlining,<br>Covering -<br>hatrack (side-<br>wall) | Vinyl backed by Fiberglas           |
| 57         | L1          | 0.011                            | 0.67                          | Laminate (F)       | Ceiling,<br>Partition panel                          | Vinyl, Fiberglas backed by<br>Mylar |
| 58         | L2          | 0.017                            | 1.02                          | Laminate (SR)      | Ceiling,<br>Seat panel                               | Mylar backed by Fiberglas           |
| 59         | L2          | 0.015                            | 0.91                          | Laminate (SR)      | Ceiling,<br>Seat panel                               | Mylar backed by Fiberglas           |
| 60         | F2          | 0.017                            | 1.05                          | Fabric (C)         | Covering - door<br>and partition                     | Vinyl backed by Fiberglas           |
| 61         | F2          | 0.009                            | 0.44                          | Fabric (C)         | Lining -<br>hatrack                                  | Vinyl backed by Dynel               |
| 62         | F2          | 0.016                            | 0.63                          | Fabric (C)         | Covering -<br>ceiling panel                          | Vinyl backed by Dynel               |
| 63         | F2          | 0.011                            | 0.51                          | Fabric (C)         | Covering -<br>ceiling panel                          | Vinyl backed by Dynel               |

MATERIALS DESCRIPTION (Continued)

| No. | Code | Sample             |                        | Designation | Use                                 | Composition                                                                                            |
|-----|------|--------------------|------------------------|-------------|-------------------------------------|--------------------------------------------------------------------------------------------------------|
|     |      | Thickness<br>(in.) | Weight<br>(lb./sq.yd.) |             |                                     |                                                                                                        |
| 64  | F2   | 0.005              | 0.28                   | Fabric (C)  | Covering -<br>insulation<br>blanket | Vinyl backed by Nylon                                                                                  |
| 65  | F2   | 0.031              | 1.74                   | Fabric (C)  | Flooring - cover                    | Vinyl backed by Fiberglas                                                                              |
| 66  | S1   | 0.13               | 0.76                   | Sheet (F)   | Flooring -<br>underlay              | Vinyl sponge (1/8") - closed<br>cell                                                                   |
| 67  | F3   | 0.045              | 1.52                   | Leather     | Upholstery -<br>lounge              | Leather - top grain                                                                                    |
| 68  | S1   | 0.183              | 0.57                   | Sheet (F)   | Flooring -<br>underlay              | Polyurethane Foam                                                                                      |
| 69  | S2   | 0.114              | 7.89                   | Sheet (SR)  | Flooring - entry<br>mat             | Rubber - synthetic                                                                                     |
| 70  | F1   | 0.032              | 0.60                   | Fabric (UC) | Drapery                             | Acrylic Resin, Metal                                                                                   |
| 71  | A    | 2.50               | 11.76                  | Assembly    | Ceiling panel -<br>with blanket     | Vinyl backed by Fiberglas<br>fabric (one) with Fiberglas<br>core (2 1/2") - Lead sheet<br>in Fiberglas |
| 72  | A    | 0.50               | 5.17                   | Assembly    | Window panel                        | Vinyl clad aluminum (one)<br>with Fiberglas pad (1/2")                                                 |

MATERIALS DESCRIPTION (Continued)

| No. | Code | Sample             |                        | Designation | Use                                | Composition                                                                                                                              |
|-----|------|--------------------|------------------------|-------------|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
|     |      | Thickness<br>(in.) | Weight<br>(lb./sq.yd.) |             |                                    |                                                                                                                                          |
| 73  | A    | 0.75               | 6.40                   | Assembly    | Hatrack -<br>underside             | Vinyl backed by Fiberglas<br>fabric over Polyurethane sheet<br>(3/8") cemented to Styrofoam<br>sheet (1/4") by Polyester<br>glass fabric |
| 74  | A    | 0.047              | 4.74                   | Assembly    | Window panel                       | Plastic clad aluminum                                                                                                                    |
| 75  | A    | 0.50               | 4.59                   | Assembly    | DADO Panel                         | Plastic clad aluminum sheet<br>backed by Fiberglas pad<br>(1/2")                                                                         |
| 76  | A    | 0.245              | 12.20                  | Assembly    | Toilet floor<br>pan                | Vinyl reinforced Fiberglas                                                                                                               |
| 77  | S3   | NA                 | NA                     | Sheet (R)   | Windowpane                         | Plexiglas                                                                                                                                |
| 78  | A    | 0.06               | 5.14                   | Assembly    | Air return<br>grille               | Polyester Fiberglas                                                                                                                      |
| 79  | A    | 0.45               | 10.81                  | Assembly    | Toilet ceiling                     | Vinyl backed by fabric over<br>Polyester glass fabric bonded<br>on wood laminate (3/8")                                                  |
| 80  | A    | 1.03               | 10.9                   | Assembly    | Aisle and Bulk-<br>head partitions | Formica sheet bonded on<br>Polyester glass fabric (two)<br>with Honeycomb paper core,<br>(1")                                            |

MATERIALS DESCRIPTION (Continued)

| <u>No.</u> | <u>Code</u> | <u>Sample Thickness</u><br>(in.) | <u>Weight</u><br>(lb./sq.yd.) | <u>Designation</u> | <u>Use</u>                     | <u>Composition</u>                                                                                   |
|------------|-------------|----------------------------------|-------------------------------|--------------------|--------------------------------|------------------------------------------------------------------------------------------------------|
| 81         | A           | 1.15                             | 10.1                          | Assembly           | Aisle and Bulk-head partitions | Texolite sheet bonded on Polyester glass fabric (two) with Honeycomb paper core, (1")                |
| 82         | A           | 1.04                             | 8.24                          | Assembly           | Aisle and Bulk-head partitions | Vinyl backed by fabric (two) cemented on Polyester glass fabric (two) with Honeycomb paper core (1") |
| 83         | A           | 1.05                             | 12.1                          | Assembly           | Aisle and Bulk-head partitions | Plastic sheet bonded on Polyester glass fabric (two) with Honeycomb paper core, (1")                 |
| 84         | A           | 0.54                             | 6.46                          | Assembly           | Partitions                     | Vinyl sheet cemented on Polyester glass fabric (two) with Honeycomb paper core, (1/2")               |
| 85         | L3          | 0.042                            | 4.59                          | Laminate (R)       |                                | Vinyl clad aluminum                                                                                  |
| 86         | L3          | 0.044                            | 4.53                          | Laminate (R)       | Lowered ceiling                | Vinyl clad aluminum                                                                                  |
| 87         | L3          | 0.035                            | 3.80                          | Laminate (R)       | Closure panel                  | Vinyl clad aluminum                                                                                  |
| 88         | L3          | 0.040                            | 4.25                          | Laminate (R)       | Light cove                     | Mylar clad aluminum                                                                                  |

MATERIALS DESCRIPTION (Continued)

| <u>No.</u> | <u>Code</u> | <u>Sample<br/>Thickness<br/>(in.)</u> | <u>Weight<br/>(lb./sq.yd.)</u> | <u>Designation</u> | <u>Use</u>             | <u>Composition</u>                                            |
|------------|-------------|---------------------------------------|--------------------------------|--------------------|------------------------|---------------------------------------------------------------|
| 89         | F3          | 0.040                                 | 1.05                           | Leather            | Upholstery -<br>lounge | Leather - top grain                                           |
| 90         | S1          | 1.19                                  | 0.71                           | Sheet (F)          | Padding                | Neoprene sponge (1")                                          |
| 91         | S1          | NA                                    | NA                             | Sheet (F)          | Padding                | Neoprene sponge (1")                                          |
| 92         | F2          | 0.028                                 | 1.11                           | Fabric (C)         | Upholstery             | Vinyl backed by Cotton                                        |
| 93         | F2          | 0.026                                 | 1.65                           | Fabric (C)         | Upholstery             | Vinyl backed by Cotton                                        |
| 94         | F2          | 0.026                                 | 1.65                           | Fabric (C)         | Upholstery             | Vinyl backed by Cotton                                        |
| 95         | S1          | 0.012                                 | 0.48                           | Sheet (F)          | Window shade           | Vinyl plastisol film                                          |
| 96         | S1          | 0.29                                  | 1.20                           | Sheet (F)          | Padding,<br>Insulation | Vinyl sponge (1/4")                                           |
| 97         | S1          | 0.27                                  | 1.30                           | Sheet (F)          | Padding,<br>Insulation | Vinyl sponge (1/4")                                           |
| 98         | S1          | 0.27                                  | 1.62                           | Sheet (F)          | Padding,<br>Insulation | Vinyl sponge (1/4")                                           |
| 99         | R2          | 0.32                                  | 3.77                           | Rug (P)            | Flooring               | Wool backed by Cotton and<br>Jute with Foam Rubber<br>padding |

# MATERIALS DESCRIPTION (Continued)

| No. | Sample |                                           | Designation | Use                 | Composition                                                        |
|-----|--------|-------------------------------------------|-------------|---------------------|--------------------------------------------------------------------|
|     | Code   | Thickness<br>(in.) Weight<br>(lb./sq.yd.) |             |                     |                                                                    |
| 100 | R1     | 0.18 2.57                                 | Rug (UP)    | Flooring            | Mohair backed by Cotton and Jute                                   |
| 101 | R2     | 0.32 4.22                                 | Rug (P)     | Flooring            | Wool backed by Cotton and Jute with Curon padding (3/16")          |
| 102 | R2     | 0.20 2.92                                 | Rug (P)     | Flooring            | Nylon backed by Dacron with Latex base                             |
| 103 | R2     | 0.46 3.48                                 | Rug (P)     | Flooring            | Nylon backed by Cotton, Jute and Dacron with Curon padding (3/16") |
| 104 | R2     | 0.28 4.75                                 | Rug (P)     | Flooring            | Nylon backed by Synthetic with Foam padding                        |
| 105 | R1     | 0.22 2.88                                 | Rug (UP)    | Flooring            | Mohair backed by Cotton and Jute                                   |
| 106 | S1     | 2.75 2.50                                 | Sheet (F)   | Padding - seat      | Polyether Foam (2 1/2")                                            |
| 107 | S1     | 0.010 0.63                                | Sheet (F)   | Covering - laminate | Polyvinyl                                                          |
| 108 | S1     | 0.005 0.35                                | Sheet (F)   | Covering - laminate | Polyvinyl                                                          |
| 109 | S1     | NA NA                                     | Sheet (F)   | Covering - laminate | Polyvinyl                                                          |

## Code and Designation

F - Fabric  
 1 - Uncoated (UC), 2 - Coated (C), 3 - Leather  
 R - Rug  
 1 - Unpadded (UP), 2 - Padded (P)

S - Sheet, L - Laminate, A - Assembly  
 1 - Flexible (F), 2 - Semi-rigid (SR), 3 - Rigid (R)  
 FR - designates flame-retardant treatment. List includes:  
 Nos. 30, 31, 33, 42, 44, 46, 70, 92, 93, 94 and 109.

APPENDIX 2

FLAMMABILITY TEST DATA ON INTERIOR MATERIALS

## LIST OF TABLES (APPENDIX 2)

### Table

- I      Test Method 5906 - Horizontal
  - Part 1 - General Tests - Representative Materials
  - Part 2 - Special Tests - New, Used and Cleaned Materials
- II     Test Method FSS Release 453
  - General Tests - Representative Materials
- III    Test Method 5902 - Vertical
  - Part 1 - General Tests - Representative Materials
  - Part 2 - Special Tests - New, Used and Cleaned Materials
- IV     Test Method NBS Radiant Panel
  - Part 1 - General Tests - Representative Materials
  - Part 2 - Special Tests - New, Used and Cleaned Materials

TABLE I  
TEST METHOD 5906 - HORIZONTAL

Part 1 - General Tests - Representative Materials

| Material<br>No. | Code | Ignition<br>Time<br>(min.) | Flaming<br>Time<br>(min.) | Burn Length<br>(Measured From<br>Start Wire)<br>(in.) | Burn Rate<br>(Measured From<br>Start Wire)<br>(in./min.) | Burn Rate  |            | Remarks                 |
|-----------------|------|----------------------------|---------------------------|-------------------------------------------------------|----------------------------------------------------------|------------|------------|-------------------------|
|                 |      |                            |                           |                                                       |                                                          | Initial    | Final      |                         |
|                 |      |                            |                           |                                                       |                                                          | 1.5 in.    | 10 in.     |                         |
|                 |      |                            |                           |                                                       |                                                          | (in./min.) | (in./min.) |                         |
| 1               | R1   | 0.10                       | 2.00                      | 0.0                                                   | I                                                        |            |            |                         |
| 1               |      | 0.10                       | 2.00                      | 0.0                                                   | I                                                        |            |            |                         |
| Avg.            |      | 0.10                       | 2.00                      | 0.0                                                   | I                                                        |            |            |                         |
| 2               | F1   | 0.25                       | 3.40                      | 8.4                                                   | 2.7                                                      | 12.5       | II         |                         |
| 3               | F1   | 0.00                       | 0.00                      | 0.0                                                   | I                                                        |            |            |                         |
| 3               |      | 0.10                       | 2.30                      | 0.0                                                   | I                                                        |            |            |                         |
| Avg.            |      | 0.05                       | 1.20                      | 0.0                                                   | I                                                        |            |            |                         |
| 4               | F1   | 0.03                       | 0.42                      | 0.0                                                   | I                                                        |            |            |                         |
| 4               |      | 0.17                       | 0.35                      | 0.0                                                   | I                                                        |            |            |                         |
| Avg.            |      | 0.10                       | 0.39                      | 0.0                                                   | I                                                        |            |            |                         |
| 5               | F2   | 0.10                       | 0.92                      | 0.2                                                   | 1.2                                                      | 2.3        | II         | Heavy smoke; acrid odor |
| 5               |      | 0.12                       | 0.70                      | 0.0                                                   | I                                                        |            |            |                         |
| 5               |      | 0.12                       | 0.75                      | 0.3                                                   | 1.8                                                      | 4.1        | II         |                         |
| Avg.            |      | 0.11                       | 0.79                      | 0.2                                                   | 1.5                                                      | 3.2        | II         |                         |
| 6               | F1   | 0.07                       | 4.33                      | 10.0                                                  | X                                                        | 2.5        | 2.7        |                         |
| 6               |      | 0.07                       | 3.84                      | 10.0                                                  | X                                                        | 3.7        | 3.0        |                         |
| Avg.            |      | 0.07                       | 4.10                      | 10.0                                                  | X                                                        | 3.1        | 2.8        |                         |
| 7               | F1   | 0.05                       | 4.92                      | 10.0                                                  | X                                                        | 3.6        | 2.2        |                         |
| 7               |      | 0.07                       | 5.53                      | 10.0                                                  | X                                                        | 3.6        | 2.0        |                         |
| Avg.            |      | 0.06                       | 5.20                      | 10.0                                                  | X                                                        | 3.6        | 2.1        |                         |
| 8               | F1   | 0.07                       | 6.67                      | 3.6                                                   | 0.6                                                      | 1.8        | II         |                         |
| 8               |      | 0.07                       | 3.22                      | 2.4                                                   | 0.6                                                      | 2.9        | II         |                         |
| Avg.            |      | 0.07                       | 5.00                      | 3.0                                                   | 0.6                                                      | 2.4        | II         |                         |
| 9               | F2   | 0.05                       | 0.50                      | 0.0                                                   | I                                                        |            |            |                         |
| 9               |      | 0.05                       | 0.50                      | 0.0                                                   | I                                                        |            |            |                         |
| Avg.            |      | 0.05                       | 0.50                      | 0.0                                                   | I                                                        |            |            |                         |

TABLE I (Continued)

## TEST METHOD 5906 - HORIZONTAL

## Part I - General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Flaming<br>Time<br>(min.) | Burn Length<br>(Measured From<br>Start Wire)<br>(in.) | Burn Rate<br>(Measured From<br>Start Wire)<br>(in./min.) | Burn Rate<br>Initial Final<br>1.5 in. 10 in.<br>(in./min.) (in./min.) |     | Remarks     |
|----------------------|----------------------------|---------------------------|-------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------------------|-----|-------------|
|                      |                            |                           |                                                       |                                                          |                                                                       |     |             |
| 10 S1                | 0.05                       | 0.33                      | 0.0                                                   | I                                                        |                                                                       |     |             |
| 10                   | 0.05                       | 0.35                      | 0.0                                                   | I                                                        |                                                                       |     |             |
| 10                   | 0.05                       | 0.32                      | 0.0                                                   | I                                                        |                                                                       |     |             |
| Avg.                 | 0.05                       | 0.34                      | 0.0                                                   | I                                                        |                                                                       |     |             |
| 11 S3                | 0.25                       | 2.50                      | 0.0                                                   | I                                                        |                                                                       |     |             |
| 12 R1                | 0.05                       | 13.80                     | 10.0                                                  | X                                                        | 0.98                                                                  | 0.6 |             |
| 12                   | 0.07                       | 6.00                      | 3.5                                                   | 0.9                                                      | 0.81                                                                  | II  | Heavy smoke |
| Avg.                 | 0.06                       | 9.90                      | 6.8                                                   | 0.5                                                      | 0.89                                                                  | II  |             |
| 13 F1                | 0.08                       | 6.80                      | 10.0                                                  | X                                                        | 2.2                                                                   | 1.6 |             |
| 13                   | 0.13                       | 6.80                      | 10.0                                                  | X                                                        | 3.2                                                                   | 1.6 |             |
| 13                   | 0.07                       | 6.80                      | 10.0                                                  | X                                                        | 3.6                                                                   | 1.6 |             |
| 13                   | 0.07                       | 6.70                      | 10.0                                                  | X                                                        | 3.5                                                                   | 1.6 |             |
| Avg.                 | 0.09                       | 6.80                      | 10.0                                                  | X                                                        | 3.1                                                                   | 1.6 |             |
| 14 F1                | 0.10                       | 5.30                      | 10.0                                                  | X                                                        | 2.3                                                                   | 2.2 |             |
| 14                   | 0.07                       | 5.10                      | 10.0                                                  | X                                                        | 2.9                                                                   | 2.2 |             |
| 14                   | 0.10                       | 5.10                      | 10.0                                                  | X                                                        | 3.1                                                                   | 2.2 |             |
| 14                   | 0.08                       | 5.10                      | 10.0                                                  | X                                                        | 2.5                                                                   | 2.2 |             |
| Avg.                 | 0.09                       | 5.20                      | 10.0                                                  | X                                                        | 2.7                                                                   | 2.2 |             |
| 15 F1                | 0.08                       | 0.43                      | 0.0                                                   | I                                                        |                                                                       |     |             |
| 15                   | 0.07                       | 0.57                      | 0.0                                                   | 0.0                                                      | 6.9                                                                   | II  |             |
| 15                   | 0.10                       | 1.43                      | 10.0                                                  | X                                                        | 6.4                                                                   | 9.1 |             |
| 15                   | 0.03                       | 0.67                      | 0.8                                                   | 1.7                                                      | 9.0                                                                   | II  |             |
| Avg.                 | 0.07                       | 0.78                      | 2.7                                                   | 2.7                                                      | 7.4                                                                   | II  |             |
| 16 F1                | 0.08                       | 1.29                      | 1.2                                                   | 1.2                                                      | 7.6                                                                   | II  |             |
| 16                   | 0.05                       | 0.84                      | 0.7                                                   | 1.3                                                      | 5.6                                                                   | II  |             |
| 16                   | 0.05                       | 0.77                      | 0.3                                                   | 0.6                                                      | 6.0                                                                   | II  |             |
| 16                   | 0.07                       | 0.92                      | 0.6                                                   | 0.9                                                      | 6.5                                                                   | II  |             |
| Avg.                 | 0.06                       | 0.95                      | 0.7                                                   | 1.0                                                      | 6.4                                                                   | II  |             |

TABLE I (Continued)  
TEST METHOD 5906 - HORIZONTAL

Part I - General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Flaming<br>Time<br>(min.) | Burn Length<br>(Measured From<br>Start Wire)<br>(in.) | Burn Rate<br>(Measured From<br>Start Wire)<br>(in./min.) | Burn Rate<br>Initial Final<br>1.5 in. 10 in.<br>(in./min.) (in./min.) | Remarks |
|----------------------|----------------------------|---------------------------|-------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------------------|---------|
| 17 F1                | 0.07                       | 0.92                      | 0.4                                                   | 1.2                                                      | 2.2                                                                   | II      |
| 17                   | 0.05                       | 9.25                      | 10.0                                                  | X                                                        | 2.8                                                                   | 1.2     |
| 17                   | 0.05                       | 7.80                      | 9.7                                                   | 1.4                                                      | 2.9                                                                   | II      |
| 17                   | 0.08                       | 0.67                      | 0.2                                                   | 1.2                                                      | 3.6                                                                   | II      |
| Avg.                 | 0.06                       | 4.70                      | 5.1                                                   | 1.3                                                      | 2.9                                                                   | II      |
| 18 F1                | 0.10                       | 3.25                      | 10.0                                                  | X                                                        | 6.4                                                                   | 3.4     |
| 18                   | 0.05                       | 2.62                      | 10.0                                                  | X                                                        | 5.8                                                                   | 4.3     |
| 18                   | 0.05                       | 2.77                      | 10.0                                                  | X                                                        | 5.3                                                                   | 4.1     |
| 18                   | 0.10                       | 3.13                      | 10.0                                                  | X                                                        | 8.2                                                                   | 3.5     |
| Avg.                 | 0.08                       | 2.90                      | 10.0                                                  | X                                                        | 6.4                                                                   | 3.8     |
| 19 F1                | 0.07                       | 2.43                      | 7.0                                                   | 3.6                                                      | 3.6                                                                   | II      |
| 19                   | 0.07                       | 0.48                      | 0.0                                                   | I                                                        |                                                                       |         |
| 19                   | 0.05                       | 2.20                      | 9.5                                                   | 5.1                                                      | 5.3                                                                   | II      |
| 19                   | 0.05                       | 0.70                      | 0.0                                                   | I                                                        |                                                                       |         |
| Avg.                 | 0.06                       | 1.45                      | 4.1                                                   | 2.2                                                      | 4.4                                                                   | II      |
| 20 F1                | 0.07                       | 2.62                      | 5.5                                                   | 2.4                                                      | 6.9                                                                   | II      |
| 20                   | 0.05                       | 2.92                      | 10.0                                                  | X                                                        | 7.5                                                                   | 3.7     |
| 20                   | 0.05                       | 3.30                      | 10.0                                                  | X                                                        | 5.6                                                                   | 3.3     |
| 20                   | 0.03                       | 0.40                      | 0.0                                                   | I                                                        |                                                                       |         |
| Avg.                 | 0.05                       | 2.30                      | 6.4                                                   | 2.3                                                      | 6.7                                                                   | II      |
| 21 F2                | 0.05                       | 0.25                      | 0.0                                                   | I                                                        |                                                                       |         |
| 21                   | 0.03                       | 0.40                      | 0.0                                                   | I                                                        |                                                                       |         |
| 21                   | 0.03                       | 0.40                      | 0.0                                                   | I                                                        |                                                                       |         |
| 21                   | 0.03                       | 0.35                      | 0.0                                                   | I                                                        |                                                                       |         |
| Avg.                 | 0.04                       | 0.34                      | 0.0                                                   | I                                                        |                                                                       |         |
| 22 F2                | 0.05                       | 0.35                      | 0.0                                                   | I                                                        |                                                                       |         |
| 22                   | 0.05                       | 0.37                      | 0.0                                                   | I                                                        |                                                                       |         |
| 22                   | 0.05                       | 0.30                      | 0.0                                                   | I                                                        |                                                                       |         |
| 22                   | 0.05                       | 0.18                      | 0.0                                                   | I                                                        |                                                                       |         |
| Avg.                 | 0.05                       | 0.30                      | 0.0                                                   | I                                                        |                                                                       |         |

Light smoke, melt, drips to bottom of cabinet and burr

Melts, drips to bottom of cabinet and burns

Heavy smoke; acrid odor

Heavy smoke; acrid odor

Heavy smoke; acrid odor

TABLE I (Continued)

## TEST METHOD 5906 - HORIZONTAL

## Part 1 - General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Flaming<br>Time<br>(min.) | Burn Length<br>(Measured From<br>Start Wire)<br>(in.) | Burn Date<br>(Measured From<br>Start Wire)<br>(in./min.) | Burn Rate                        |                               | Remarks                                                                                  |
|----------------------|----------------------------|---------------------------|-------------------------------------------------------|----------------------------------------------------------|----------------------------------|-------------------------------|------------------------------------------------------------------------------------------|
|                      |                            |                           |                                                       |                                                          | Initial<br>1.5 in.<br>(in./min.) | Final<br>10 in.<br>(in./min.) |                                                                                          |
| 23 P2                | 0.05                       | 2.33                      | 10.0                                                  | X                                                        | 5.0                              | 5.0                           | Heavy smoke; acrid odor                                                                  |
| 23                   | 0.05                       | 2.43                      | 10.0                                                  | X                                                        | 6.0                              | 4.6                           |                                                                                          |
| 23                   | 0.05                       | 2.47                      | 10.0                                                  | X                                                        | 5.0                              | 4.6                           |                                                                                          |
| Avg.                 | 0.05                       | 2.60                      | 10.0                                                  | X                                                        | 5.3                              | 4.7                           |                                                                                          |
| 24 P2                | 0.07                       | 0.50                      | 0.0                                                   | I                                                        |                                  |                               | Heavy smoke; acrid odor                                                                  |
| 24                   | 0.05                       | 0.43                      | 0.0                                                   | I                                                        |                                  |                               |                                                                                          |
| 24                   | 0.08                       | 0.53                      | 0.0                                                   | I                                                        |                                  |                               |                                                                                          |
| 24                   | 0.07                       | 0.57                      | 0.0                                                   | I                                                        |                                  |                               |                                                                                          |
| Avg.                 | 0.07                       | 0.51                      | 0.0                                                   | I                                                        |                                  |                               |                                                                                          |
| 25 L1                | 0.12                       | 1.75                      | 0.0                                                   | I                                                        |                                  |                               | Heavy smoke; acrid odor                                                                  |
| 25                   | 0.05                       | 2.17                      | 0.0                                                   | I                                                        |                                  |                               |                                                                                          |
| 25                   | 0.05                       | 2.15                      | 0.0                                                   | I                                                        |                                  |                               |                                                                                          |
| 25                   | 0.05                       | 1.75                      | 0.0                                                   | I                                                        |                                  |                               |                                                                                          |
| Avg.                 | 0.07                       | 2.00                      | 0.0                                                   | I                                                        |                                  |                               |                                                                                          |
| 26 R1                | 0.10                       | 2.00                      | 0.0                                                   | I                                                        |                                  |                               | Moderate to heavy smoke; pad burns ahead<br>of nap flame<br>Test stopped<br>Test stopped |
| 26                   | 0.10                       | 2.00                      | 0.0                                                   | I                                                        |                                  |                               |                                                                                          |
| 26                   | 0.12                       | 1.67                      | 0.0                                                   | I                                                        |                                  |                               |                                                                                          |
| 26                   | 0.12                       | 1.70                      | 0.0                                                   | I                                                        |                                  |                               |                                                                                          |
| Avg.                 | 0.11                       | 1.8                       | 0.0                                                   | I                                                        |                                  |                               |                                                                                          |
| 27 R2                | 0.13                       | 14.89                     | 4.0                                                   | 0.3                                                      | 0.57                             | II                            | Moderate to heavy smoke; pad burns ahead<br>of nap flame<br>Test stopped<br>Test stopped |
| 27                   | 0.10                       | 15.00                     | 6.5                                                   | 0.5                                                      | 1.20                             | II                            |                                                                                          |
| 27                   | 0.13                       | 5.00                      | 1.4                                                   | 0.4                                                      | 1.40                             | II                            |                                                                                          |
| 27                   | 0.12                       | 5.00                      | 1.4                                                   | 0.4                                                      | 1.60                             | II                            |                                                                                          |
| Avg.                 | 0.12                       | -                         | 3.3                                                   | 0.4                                                      | 1.19                             | II                            |                                                                                          |
| 28 P2                | 0.05                       | 0.50                      | 0.0                                                   | I                                                        |                                  |                               |                                                                                          |
| 28                   | 0.05                       | 0.50                      | 0.0                                                   | I                                                        |                                  |                               |                                                                                          |
| 28                   | 0.03                       | 0.33                      | 0.0                                                   | I                                                        |                                  |                               |                                                                                          |
| 28                   | 0.03                       | 0.30                      | 0.0                                                   | I                                                        |                                  |                               |                                                                                          |
| Avg.                 | 0.04                       | 0.41                      | 0.0                                                   | I                                                        |                                  |                               |                                                                                          |

TABLE I (Continued)

## TEST METHOD 5906 - HORIZONTAL

## Part 1 - General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Flaming<br>Time<br>(min.) | Burn Length<br>(Measured From<br>Start Wire)<br>(in.) | Burn Rate<br>(Measured From<br>Start Wire)<br>(in./min.) | Burn Rate<br>Initial<br>1.5 in.<br>(in./min.) | Burn Rate<br>Final<br>10 in.<br>(in./min.) | Remarks                                               |
|----------------------|----------------------------|---------------------------|-------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------|--------------------------------------------|-------------------------------------------------------|
| 29 Li                | 0.07                       | 0.75                      | 0.0                                                   | I                                                        |                                               |                                            | Heavy smoke                                           |
| 29                   | 0.10                       | 1.27                      | 0.0                                                   | I                                                        |                                               |                                            |                                                       |
| 29                   | 0.07                       | 0.50                      | 0.0                                                   | I                                                        |                                               |                                            |                                                       |
| 29                   | 0.05                       | 0.45                      | 0.0                                                   | I                                                        |                                               |                                            |                                                       |
| Avg.                 | 0.07                       | 0.74                      | 0.0                                                   | I                                                        |                                               |                                            |                                                       |
| 30 S3                | 0.13                       | 5.00                      | 0.0                                                   | I                                                        |                                               |                                            | Heavy, sooty smoke                                    |
| 30                   | 0.10                       | 2.00                      | 0.0                                                   | I                                                        |                                               |                                            |                                                       |
| 30                   | 0.13                       | 2.00                      | 0.0                                                   | I                                                        |                                               |                                            |                                                       |
| 30                   | 0.12                       | 2.00                      | 0.0                                                   | I                                                        |                                               |                                            |                                                       |
| Avg.                 | 0.12                       | 2.80                      | 0.0                                                   | I                                                        |                                               |                                            |                                                       |
| 31 S3                | 0.20                       | 4.00                      | 0.0                                                   | I                                                        |                                               |                                            | Moderate to heavy smoke                               |
| 31                   | 0.13                       | 4.00                      | 0.0                                                   | I                                                        |                                               |                                            |                                                       |
| 31                   | 0.16                       | 2.00                      | 0.0                                                   | I                                                        |                                               |                                            |                                                       |
| 31                   | 0.15                       | 2.00                      | 0.0                                                   | I                                                        |                                               |                                            |                                                       |
| Avg.                 | 0.16                       | 3.00                      | 0.0                                                   | I                                                        |                                               |                                            |                                                       |
| 32 S3                | 0.47                       | 2.33                      | 0.0                                                   | I                                                        |                                               |                                            | Very heavy smoke                                      |
| 32                   | 0.42                       | 2.00                      | 0.0                                                   | I                                                        |                                               |                                            |                                                       |
| 32                   | 0.28                       | 2.00                      | 0.0                                                   | I                                                        |                                               |                                            |                                                       |
| 32                   | 0.22                       | 2.00                      | 0.0                                                   | I                                                        |                                               |                                            |                                                       |
| Avg.                 | 0.35                       | 2.10                      | 0.0                                                   | I                                                        |                                               |                                            |                                                       |
| 33 S3                | 0.47                       | 2.05                      | 0.0                                                   | I                                                        |                                               | 0.9                                        | Very heavy black smoke; burning stopped at 1.5 inches |
| 33                   | 0.13                       | 2.00                      | 0.0                                                   | I                                                        |                                               |                                            |                                                       |
| 33                   | 0.20                       | 2.00                      | 0.5                                                   | 0.5                                                      |                                               | 1.9 II                                     |                                                       |
| 33                   | 0.15                       | 1.75                      | 0.5                                                   | 0.5                                                      |                                               | 1.7 II                                     |                                                       |
| Avg.                 | 0.24                       | 2.00                      | 0.3                                                   | 0.3                                                      |                                               | 1.5 II                                     |                                                       |
| 34 S3                | 0.30                       | 3.00                      | 0.0                                                   | I                                                        |                                               |                                            |                                                       |
| 34                   | 0.08                       | 1.75                      | 0.0                                                   | I                                                        |                                               |                                            |                                                       |
| 34                   | 0.05                       | 2.00                      | 0.0                                                   | I                                                        |                                               |                                            |                                                       |
| 34                   | 0.07                       | 2.00                      | 0.0                                                   | I                                                        |                                               |                                            |                                                       |
| Avg.                 | 0.13                       | 2.20                      | 0.0                                                   | I                                                        |                                               |                                            |                                                       |

TABLE I (Continued)  
TEST METHOD 5906 - HORIZONTAL

Part 1 - General Tests - Representative Materials

| Material<br>No. | Code | Ignition<br>Time<br>(min.) | Flaming<br>Time<br>(min.) | Burn Length<br>(Measured From<br>Start Wire)<br>(in.) | Burn Rate<br>(Measured From<br>Start Wire)<br>(in./min.) | Burn Rate  |            | Remarks            |
|-----------------|------|----------------------------|---------------------------|-------------------------------------------------------|----------------------------------------------------------|------------|------------|--------------------|
|                 |      |                            |                           |                                                       |                                                          | Initial    | Final      |                    |
|                 |      |                            |                           |                                                       |                                                          | 1.5 in.    | 10 in.     |                    |
|                 |      |                            |                           |                                                       |                                                          | (in./min.) | (in./min.) |                    |
| 35              | S2   | 0.13                       | 0.59                      | 0.0                                                   | I                                                        |            |            |                    |
| 35              |      | 0.15                       | 0.75                      | 0.0                                                   | I                                                        |            |            |                    |
| 35              |      | 0.13                       | 1.42                      | 0.0                                                   | I                                                        |            |            |                    |
| 35              |      | 0.05                       | 0.85                      | 0.0                                                   | I                                                        |            |            |                    |
| Avg.            |      | 0.12                       | 0.90                      | 0.0                                                   | I                                                        |            |            |                    |
| 36              | F2   | 0.07                       | 1.33                      | 0.0                                                   | I                                                        |            |            |                    |
| 37              | F2   | 0.05                       | 3.48                      | 10.0                                                  | X                                                        | 2.1        | 3.7        |                    |
| 37              |      | 0.05                       | 3.69                      | 10.0                                                  | X                                                        | 2.4        | 3.3        |                    |
| Avg.            |      | 0.06                       | 3.58                      | 10.0                                                  | X                                                        | 2.3        | 3.5        |                    |
| 38              | F2   | 0.05                       | 2.37                      | 10.0                                                  | X                                                        | 3.5        | 5.3        |                    |
| 38              |      | 0.05                       | 2.50                      | 10.0                                                  | X                                                        | 3.6        | 4.9        |                    |
| Avg.            |      | 0.05                       | 2.40                      | 10.0                                                  | X                                                        | 3.5        | 5.1        |                    |
| 40              | F2   | 0.05                       | 1.87                      | 10.0                                                  | X                                                        | 6.0        | 6.4        | Heavy smoke        |
| 40              |      | 0.05                       | 1.59                      | 10.0                                                  | X                                                        | 6.4        | 7.7        |                    |
| 40              |      | 0.03                       | 1.69                      | 10.0                                                  | X                                                        | 5.6        | 7.1        |                    |
| 40              |      | 0.05                       | 1.62                      | 10.0                                                  | X                                                        | 7.5        | 7.3        |                    |
| Avg.            |      | 0.05                       | 1.70                      | 10.0                                                  | X                                                        | 6.4        | 7.1        |                    |
| 41              | R1   | 0.15                       | 5.92                      | 2.6                                                   | 0.5                                                      | 1.4        | II         | Heavy, sooty smoke |
| 41              |      | 0.17                       | 7.35                      | 10.0                                                  | X                                                        | 1.4        | 1.6        |                    |
| 41              |      | 0.13                       | 7.47                      | 10.0                                                  | X                                                        | 1.5        | 1.5        |                    |
| 41              |      | 0.13                       | 1.75                      | 0.3                                                   | 0.5                                                      | 1.4        | II         |                    |
| Avg.            |      | 0.15                       | 5.60                      | 5.7                                                   | 1.0                                                      | 1.4        | II         |                    |
| 42              | F1   | 0.08                       | 2.08                      | 0.0                                                   | I                                                        |            |            | Light smoke        |
| 42              |      | 0.08                       | 0.84                      | 0.0                                                   | I                                                        |            |            |                    |
| 42              |      | 0.10                       | 1.03                      | 0.0                                                   | I                                                        |            |            |                    |
| 42              |      | 0.10                       | 1.08                      | 0.0                                                   | I                                                        |            |            |                    |
| Avg.            |      | 0.09                       | 1.00                      | 0.0                                                   | I                                                        |            |            |                    |

TABLE I (Continued)  
TEST METHOD 5906 - HORIZONTAL

Part 1 - General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Flaming<br>Time<br>(min.) | Burn Length<br>(Measured From<br>Start Wire)<br>(in.) | Burn Rate<br>(Measured From<br>Start Wire)<br>(in./min.) |                 | Remarks                       |
|----------------------|----------------------------|---------------------------|-------------------------------------------------------|----------------------------------------------------------|-----------------|-------------------------------|
|                      |                            |                           |                                                       | Initial<br>1.5 in.                                       | Final<br>10 in. |                               |
| 43 F1                | 0.07                       | 3.84                      | 10.0                                                  | X                                                        | 3.9             | Moderate gray smoke           |
| 43                   | 0.12                       | 3.92                      | 10.0                                                  | X                                                        | 4.6             |                               |
| 43                   | 0.10                       | 3.67                      | 10.0                                                  | X                                                        | 4.6             |                               |
| 43                   | 0.12                       | 3.89                      | 10.0                                                  | X                                                        | 4.1             |                               |
| AVG.                 | 0.10                       | 3.80                      | 10.0                                                  | X                                                        | 4.3             |                               |
| 44 F1                | 0.05                       | 0.52                      | 0.0                                                   | I                                                        |                 | Heavy black smoke             |
| 44                   | 0.05                       | 6.00                      | 10.0                                                  | X                                                        | 2.4             |                               |
| 44                   | 0.10                       | 0.84                      | 0.0                                                   | I                                                        |                 |                               |
| 44                   | 0.07                       | 0.92                      | 0.0                                                   | I                                                        |                 |                               |
| AVG.                 | 0.07                       | 2.10                      | 2.5                                                   | 0.5                                                      | 2.4             | II                            |
| 45 F1                | 0.10                       | 5.20                      | 10.0                                                  | X                                                        | 6.0             |                               |
| 45                   | 0.05                       | 5.27                      | 10.0                                                  | X                                                        | 3.5             |                               |
| 45                   | 0.05                       | 5.28                      | 10.0                                                  | X                                                        | 3.6             |                               |
| 45                   | 0.05                       | 5.32                      | 10.0                                                  | X                                                        | 3.5             |                               |
| AVG.                 | 0.06                       | 5.30                      | 10.0                                                  | X                                                        | 4.1             |                               |
| 46 F2                | 0.10                       | 0.84                      | 0.0                                                   | I                                                        |                 | Moderate smoke                |
| 46                   | 0.05                       | 0.92                      | 0.0                                                   | I                                                        |                 |                               |
| 46                   | 0.07                       | 0.90                      | 0.0                                                   | I                                                        |                 |                               |
| 46                   | 0.07                       | 0.89                      | 0.0                                                   | I                                                        |                 |                               |
| AVG.                 | 0.07                       | 0.89                      | 0.0                                                   | I                                                        |                 |                               |
| 47 S1                | 0.03                       | 0.37                      | 0.0                                                   | I                                                        | 5.0             | Burning stopped at 1.5 inches |
| 47                   | 0.03                       | 0.55                      | 0.0                                                   | I                                                        | 8.8             | Burning stopped at 1.5 inches |
| 47                   | 0.03                       | 0.57                      | 0.5                                                   | 1.2                                                      | 12.5            | II                            |
| 47                   | 0.03                       | 0.57                      | 0.0                                                   | I                                                        | 7.5             | Burning stopped at 1.5 inches |
| AVG.                 | 0.03                       | 0.52                      | 0.1                                                   | 0.3                                                      | 8.7             | II                            |
| 48 F2                | 0.05                       | 0.80                      | 0.0                                                   | I                                                        |                 |                               |
| 48                   | 0.05                       | 0.87                      | 0.0                                                   | I                                                        |                 |                               |
| 48                   | 0.05                       | 0.92                      | 0.0                                                   | I                                                        |                 |                               |
| 48                   | 0.05                       | 0.89                      | 0.0                                                   | I                                                        |                 |                               |
| AVG.                 | 0.05                       | 0.87                      | 0.0                                                   | I                                                        |                 |                               |

TABLE I (Continued)  
TEST METHOD 5506 - HORIZONTAL

Part 1 - General Tests - Representative Materials

| Material<br>No. Code | Ignit' n<br>Time<br>(min.) | Flaming<br>Time<br>(min.) | Burn Length<br>(Measured From<br>Start Wire)<br>(in.) | Burn Rate<br>(Measured From<br>Start Wire)<br>(in./min.) | Burn Rate<br>Initial Final<br>1.5 in. 10 in.<br>(in./min.) (in./min.) | Remarks                      |
|----------------------|----------------------------|---------------------------|-------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------------------|------------------------------|
| 49 F2                | 0.05                       | 1.30                      | 1.8                                                   | 2.2                                                      | 3.5                                                                   | Heavy smoke                  |
| 49                   | 0.07                       | 2.64                      | 6.3                                                   | 2.9                                                      | 3.6                                                                   | II                           |
| 49                   | 0.07                       | 1.22                      | 1.5                                                   | 2.0                                                      | 3.7                                                                   | II                           |
| 49                   | 0.05                       | 3.07                      | 8.4                                                   | 3.2                                                      | 3.4                                                                   | II                           |
| AVG.                 | 0.06                       | 2.10                      | 4.5                                                   | 2.6                                                      | 3.5                                                                   | II                           |
| 50 F2                | 0.05                       | 2.50                      | 3.4                                                   | 1.7                                                      | 3.7                                                                   | Heavy gray smoke; acrid odor |
| 50                   | 0.05                       | 3.22                      | 10.4                                                  | X                                                        | 4.7                                                                   | II                           |
| 50                   | 0.05                       | 3.94                      | 7.8                                                   | 2.2                                                      | 4.7                                                                   | II                           |
| 50                   | 0.05                       | 2.30                      | 3.5                                                   | 1.8                                                      | 4.7                                                                   | II                           |
| AVG.                 | 0.05                       | 3.0                       | 6.2                                                   | 2.3                                                      | 4.5                                                                   | II                           |
| 51 F2                | 0.05                       | 0.28                      | 0.0                                                   | I                                                        |                                                                       | Light gray smoke             |
| 51                   | 0.05                       | 0.30                      | 0.0                                                   | I                                                        |                                                                       |                              |
| 51                   | 0.05                       | 0.32                      | 0.0                                                   | I                                                        |                                                                       |                              |
| 51                   | 0.05                       | 0.23                      | 0.0                                                   | I                                                        |                                                                       |                              |
| AVG.                 | 0.05                       | 0.28                      | 0.0                                                   | I                                                        |                                                                       |                              |
| 52 F2                | 0.05                       | 0.38                      | 0.0                                                   | I                                                        |                                                                       | Moderate to heavy smoke      |
| 52                   | 0.05                       | 0.38                      | 0.0                                                   | I                                                        |                                                                       |                              |
| 52                   | 0.05                       | 0.32                      | 0.0                                                   | I                                                        |                                                                       |                              |
| 52                   | 0.05                       | 0.37                      | 0.0                                                   | I                                                        |                                                                       |                              |
| AVG.                 | 0.05                       | 0.36                      | 0.0                                                   | I                                                        |                                                                       |                              |
| 53 F2                | 0.03                       | 0.75                      | 0.0                                                   | I                                                        |                                                                       | Moderate gray smoke          |
| 53                   | 0.03                       | 0.77                      | 0.0                                                   | I                                                        |                                                                       |                              |
| 53                   | 0.03                       | 0.80                      | 0.0                                                   | I                                                        |                                                                       |                              |
| AVG.                 | 0.03                       | 0.77                      | 0.0                                                   | I                                                        |                                                                       |                              |
| 54 F2                | 0.05                       | 0.80                      | 0.0                                                   | I                                                        |                                                                       | Moderate gray smoke          |
| 54                   | 0.03                       | 0.67                      | 0.0                                                   | I                                                        |                                                                       |                              |
| 54                   | 0.03                       | 0.84                      | 0.0                                                   | I                                                        |                                                                       |                              |
| 54                   | 0.05                       | 0.50                      | 0.0                                                   | I                                                        |                                                                       |                              |
| AVG.                 | 0.04                       | 0.70                      | 0.0                                                   | I                                                        |                                                                       |                              |

TABLE I (Continued)

## TEST METHOD 5906 - HORIZONTAL

## Part 1 - General Tests - Representative Materials

| Material<br>No. | Code | Ignition<br>Time<br>(min.) | Flaming<br>Time<br>(min.) | Burn Length<br>(Measured From<br>Start Wire)<br>(in.) | Burn Rate<br>(Measured From<br>Start Wire)<br>(in./min.) | Burn Rate                        |                               | Remarks                                            |
|-----------------|------|----------------------------|---------------------------|-------------------------------------------------------|----------------------------------------------------------|----------------------------------|-------------------------------|----------------------------------------------------|
|                 |      |                            |                           |                                                       |                                                          | Initial<br>1.5 in.<br>(in./min.) | Final<br>10 in.<br>(in./min.) |                                                    |
| 55              | F2   | 0.05                       | 1.75                      | 0.0                                                   | I                                                        |                                  |                               | Heavy gray smoke; acrid odor                       |
| 55              |      | 0.05                       | 1.84                      | 0.0                                                   | I                                                        |                                  |                               |                                                    |
| 55              |      | 0.05                       | 1.00                      | 0.0                                                   | I                                                        |                                  |                               |                                                    |
| 55              |      | 0.05                       | 0.92                      | 0.0                                                   | I                                                        |                                  |                               |                                                    |
| 55              |      | 0.05                       | 1.40                      | 0.0                                                   | I                                                        |                                  |                               |                                                    |
| Avg.            |      |                            |                           |                                                       |                                                          |                                  |                               |                                                    |
| 56              | F2   | 0.03                       | 0.33                      | 0.0                                                   | I                                                        |                                  |                               | Moderate gray smoke; acrid odor; mylar melts       |
| 56              |      | 0.02                       | 0.28                      | 0.0                                                   | I                                                        |                                  |                               |                                                    |
| 56              |      | 0.02                       | 0.32                      | 0.0                                                   | I                                                        |                                  |                               |                                                    |
| 56              |      | 0.02                       | 0.27                      | 0.0                                                   | I                                                        |                                  |                               |                                                    |
| 56              |      | 0.02                       | 0.30                      | 0.0                                                   | I                                                        |                                  |                               |                                                    |
| Avg.            |      |                            |                           |                                                       |                                                          |                                  |                               |                                                    |
| 57              | L1   | 0.03                       | 0.33                      | 0.0                                                   | I                                                        |                                  |                               | Moderate gray smoke; acrid odor; mylar melts       |
| 57              |      | 0.03                       | 0.35                      | 0.0                                                   | I                                                        |                                  |                               |                                                    |
| 57              |      | 0.03                       | 0.33                      | 0.0                                                   | I                                                        |                                  |                               |                                                    |
| 57              |      | 0.03                       | 0.30                      | 0.0                                                   | I                                                        |                                  |                               |                                                    |
| 57              |      | 0.03                       | 0.33                      | 0.0                                                   | I                                                        |                                  |                               |                                                    |
| Avg.            |      |                            |                           |                                                       |                                                          |                                  |                               |                                                    |
| 58              | L2   | 0.02                       | 0.42                      | 0.0                                                   | I                                                        |                                  |                               | Melts                                              |
| 58              |      | 0.03                       | 0.42                      | 0.0                                                   | I                                                        |                                  |                               |                                                    |
| 58              |      | 0.03                       | 0.43                      | 0.0                                                   | I                                                        |                                  |                               |                                                    |
| 58              |      | 0.03                       | 0.45                      | 0.0                                                   | I                                                        |                                  |                               |                                                    |
| 58              |      | 0.03                       | 0.43                      | 0.0                                                   | I                                                        |                                  |                               |                                                    |
| Avg.            |      |                            |                           |                                                       |                                                          |                                  |                               |                                                    |
| 59              | L2   | 0.03                       | 0.59                      | 0.0                                                   | I                                                        |                                  |                               | Moderate gray smoke; acrid odor; melts and flashes |
| 59              |      | 0.03                       | 0.62                      | 0.0                                                   | I                                                        |                                  |                               |                                                    |
| 59              |      | 0.03                       | 0.65                      | 0.0                                                   | I                                                        |                                  |                               |                                                    |
| 59              |      | 0.03                       | 0.69                      | 0.0                                                   | I                                                        |                                  |                               |                                                    |
| 59              |      | 0.03                       | 0.64                      | 0.0                                                   | I                                                        |                                  |                               |                                                    |
| Avg.            |      |                            |                           |                                                       |                                                          |                                  |                               |                                                    |
| 60              | F2   | 0.03                       | 0.75                      | 0.0                                                   | I                                                        |                                  |                               | Light smoke; acrid odor                            |
| 60              |      | 0.03                       | 0.59                      | 0.0                                                   | I                                                        |                                  |                               |                                                    |
| 60              |      | 0.05                       | 0.75                      | 0.0                                                   | I                                                        |                                  |                               |                                                    |
| 60              |      | 0.03                       | 0.79                      | 0.0                                                   | I                                                        |                                  |                               |                                                    |
| 60              |      | 0.04                       | 0.72                      | 0.0                                                   | I                                                        |                                  |                               |                                                    |
| Avg.            |      |                            |                           |                                                       |                                                          |                                  |                               |                                                    |

TABLE I (Continued)  
TEST METHOD 5906 - HORIZONTAL

Part 1 - General Tests - Representative Materials

| Material<br>No. | Code | Ignition<br>Time<br>(min.) | Flaming<br>Time<br>(min.) | Burn Length<br>(Measured From<br>Start Wire)<br>(in.) | Burn Rate<br>(Measured From<br>Start Wire)<br>(in./min.) | Burn Rate<br>Initial<br>1.5 in.<br>(in./min.) | Burn Rate<br>Final<br>10 in.<br>(in./min.) | Remarks                      |
|-----------------|------|----------------------------|---------------------------|-------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------|--------------------------------------------|------------------------------|
| 61              | F2   | 0.03                       | 0.17                      | 0.0                                                   | I                                                        |                                               |                                            | No smoke                     |
| 61              |      | 0.03                       | 0.35                      | 0.0                                                   | I                                                        |                                               |                                            |                              |
| 61              |      | 0.02                       | 0.32                      | 0.0                                                   | I                                                        |                                               |                                            |                              |
| 61              |      | 0.03                       | 0.33                      | 0.0                                                   | I                                                        |                                               |                                            |                              |
| Avg.            |      | 0.03                       | 0.27                      | 0.0                                                   | I                                                        |                                               |                                            |                              |
| 62              | F2   | 0.03                       | 0.33                      | 0.0                                                   | I                                                        |                                               |                                            | No smoke; melts              |
| 62              |      | 0.03                       | 0.18                      | 0.0                                                   | I                                                        |                                               |                                            |                              |
| 62              |      | 0.03                       | 0.33                      | 0.0                                                   | I                                                        |                                               |                                            |                              |
| Avg.            |      | 0.03                       | 0.28                      | 0.0                                                   | I                                                        |                                               |                                            |                              |
| 63              | F2   | 0.02                       | 0.07                      | 0.0                                                   | I                                                        |                                               |                                            | Melts                        |
| 63              |      | 0.03                       | 0.23                      | 0.0                                                   | I                                                        |                                               |                                            |                              |
| 63              |      | 0.03                       | 0.28                      | 0.0                                                   | I                                                        |                                               |                                            |                              |
| 63              |      | 0.03                       | 0.53                      | 0.0                                                   | I                                                        |                                               |                                            |                              |
| Avg.            |      | 0.03                       | 0.28                      | 0.0                                                   | I                                                        |                                               |                                            |                              |
| 64              | F2   | 0.02                       | 0.57                      | 1.0                                                   | 2.5                                                      | 10.0                                          | 11.0                                       | Light gray smoke; acrid odor |
| 64              |      | 0.02                       | 0.48                      | 0.9                                                   | 2.7                                                      | 11.5                                          | 11.5                                       |                              |
| 64              |      | 0.03                       | 0.62                      | 0.7                                                   | 1.6                                                      | 10.7                                          | 11.0                                       |                              |
| 64              |      | 0.03                       | 0.40                      | 0.7                                                   | 2.8                                                      | 12.5                                          | 11.0                                       |                              |
| Avg.            |      | 0.03                       | 0.52                      | 0.8                                                   | 2.4                                                      | 10.7                                          | 11.0                                       |                              |
| 65              | F2   | 0.05                       | 1.00                      | 0.0                                                   | I                                                        |                                               |                                            | Moderate gray smoke          |
| 65              |      | 0.07                       | 1.08                      | 0.0                                                   | I                                                        |                                               |                                            |                              |
| 65              |      | 0.07                       | 1.08                      | 0.0                                                   | I                                                        |                                               |                                            |                              |
| 65              |      | 0.07                       | 1.33                      | 0.0                                                   | I                                                        |                                               |                                            |                              |
| Avg.            |      | 0.07                       | 1.10                      | 0.0                                                   | I                                                        |                                               |                                            |                              |
| 66              | G1   | 0.02                       | 0.50                      | 0.0                                                   | I                                                        |                                               |                                            | Bluish smoke; acrid odor     |
| 66              |      | 0.02                       | 0.40                      | 0.0                                                   | I                                                        |                                               |                                            |                              |
| 66              |      | 0.02                       | 0.47                      | 0.0                                                   | I                                                        |                                               |                                            |                              |
| 66              |      | 0.02                       | 0.42                      | 0.0                                                   | I                                                        |                                               |                                            |                              |
| Avg.            |      | 0.02                       | 0.45                      | 0.0                                                   | I                                                        |                                               |                                            |                              |

TABLE I (Continued)  
TEST METHOD 5906 - HORIZONTAL

Part 1 - General Tests - Representative Materials

| Material<br>No. | Code | Ignition<br>Time<br>(min.) | Flaming<br>Time<br>(min.) | Burn Length<br>(Measured From<br>Start Wire)<br>(in.) | Burn Rate<br>(Measured From<br>Start Wire)<br>(in./min.) | Burn Rate                        |                               | Remarks                                   |
|-----------------|------|----------------------------|---------------------------|-------------------------------------------------------|----------------------------------------------------------|----------------------------------|-------------------------------|-------------------------------------------|
|                 |      |                            |                           |                                                       |                                                          | Initial<br>1.5 in.<br>(in./min.) | Final<br>10 in.<br>(in./min.) |                                           |
| 67              | F3   | 0.33                       | 7.92                      | 6.8                                                   | 1.0                                                      | 1.4                              | II                            | Moderate light gray smoke; very foul odor |
| 67              |      | 0.17                       | 1.05                      | 0.0                                                   | I                                                        |                                  |                               |                                           |
| 67              |      | 0.17                       | 1.45                      | 0.0                                                   | I                                                        | 1.4                              | II                            | Burning stopped at 1.5 inches             |
| 67              |      | 0.12                       | 2.17                      | 0.3                                                   | 0.3                                                      | 1.6                              | II                            |                                           |
| Avg.            |      | 0.20                       | 3.15                      | 1.8                                                   | 0.3                                                      | 1.4                              | II                            |                                           |
| 68              | S1   | 0.03                       | 0.75                      | 0.0                                                   | I                                                        |                                  |                               | Light to moderate smoke; sponge molts     |
| 68              |      | 0.05                       | 0.62                      | 0.0                                                   | I                                                        |                                  |                               |                                           |
| 68              |      | 0.05                       | 0.60                      | 0.0                                                   | I                                                        |                                  |                               |                                           |
| 68              |      | 0.07                       | 0.64                      | 0.0                                                   | I                                                        |                                  |                               |                                           |
| Avg.            |      | 0.05                       | 0.65                      | 0.0                                                   | I                                                        |                                  |                               |                                           |
| 69              | S2   | 0.00                       | 0.00                      | 0.0                                                   | I                                                        |                                  |                               | Heavy blue-gray smoke                     |
| 69              |      | 0.00                       | 0.00                      | 0.0                                                   | I                                                        |                                  |                               |                                           |
| 69              |      | 0.00                       | 0.00                      | 0.0                                                   | I                                                        |                                  |                               |                                           |
| 69              |      | 0.00                       | 0.00                      | 0.0                                                   | I                                                        |                                  |                               |                                           |
| Avg.            |      | 0.00                       | 0.00                      | 0.0                                                   | I                                                        |                                  |                               |                                           |
| 70              | F1   | 0.05                       | 0.33                      | 0.0                                                   | I                                                        |                                  |                               |                                           |
| 70              |      | 0.05                       | 0.33                      | 0.0                                                   | I                                                        |                                  |                               |                                           |
| 70              |      | 0.03                       | 0.32                      | 0.0                                                   | I                                                        |                                  |                               |                                           |
| 70              |      | 0.05                       | 0.25                      | 0.0                                                   | I                                                        |                                  |                               |                                           |
| Avg.            |      | 0.05                       | 0.30                      | 0.0                                                   | I                                                        |                                  |                               |                                           |
| 76              | A    | 0.07                       | 5.00                      | 0.0                                                   | I                                                        |                                  |                               | Moderate heavy smoke; acrid odor          |
| 76              |      | 0.08                       | 5.00                      | 0.0                                                   | I                                                        |                                  |                               |                                           |
| Avg.            |      | 0.08                       | 5.00                      | 0.0                                                   | I                                                        |                                  |                               |                                           |
| 77              | S3   | 0.17                       | 2.75                      | 1.9                                                   | 1.3                                                      | 1.4                              | II                            | Test stopped. Drips, burns                |
| 77              |      | 0.20                       | 4.62                      | 2.7                                                   | 1.1                                                      | 0.8                              | II                            |                                           |
| Avg.            |      | 0.19                       | -                         | 2.3                                                   | 1.2                                                      | 1.1                              | II                            |                                           |
| 80              | A    | 0.13                       | 1.50                      | 0.0                                                   | I                                                        |                                  |                               |                                           |

TABLE I (Continued)  
TEST METHOD 5906 - HORIZONTAL

Part 1 - General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Flaming<br>Time<br>(min.) | Burn Length<br>(Measured From<br>Start Wire)<br>(in.) | Burn Rate<br>(Measured From<br>Start Wire)<br>(in./min.) | Burn Rate                        |                               | Remarks                      |
|----------------------|----------------------------|---------------------------|-------------------------------------------------------|----------------------------------------------------------|----------------------------------|-------------------------------|------------------------------|
|                      |                            |                           |                                                       |                                                          | Initial<br>1.5 in.<br>(in./min.) | Final<br>10 in.<br>(in./min.) |                              |
| 81 A                 | 0.33                       | 2.00                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 82 A                 | 1.03                       | 2.50                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 83 A                 | 0.10                       | 2.30                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 84 A                 | 0.12                       | 1.17                      | 0.0                                                   | I                                                        |                                  |                               | Light gray smoke             |
| 85 L3                | 0.00                       | 0.00                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 86 L3                | 0.00                       | 0.00                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 87 L3                | 0.00                       | 0.00                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 88 L3                | 0.00                       | 0.00                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 89 F3                | 0.07                       | 1.92                      | 0.8                                                   | 1.4                                                      | II                               |                               |                              |
| 89                   | 0.07                       | 0.92                      | 0.0                                                   | I                                                        | II                               |                               |                              |
| Avg.                 | 0.07                       | 1.40                      | 0.4                                                   | 0.7                                                      | II                               |                               |                              |
| 91 81                | 0.02                       | 2.23                      | 10.0                                                  | X                                                        | 4.7                              | 5.2                           | Heavy smoke; acrid odor      |
| 92 F2                | 0.05                       | 0.75                      | 0.0                                                   | I                                                        |                                  |                               | Very heavy smoke; acrid odor |
| 92                   | 0.05                       | 0.75                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 92                   | 0.07                       | 0.70                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 92                   | 0.05                       | 0.64                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| Avg.                 | 0.05                       | 0.71                      | 0.0                                                   | I                                                        |                                  |                               |                              |

TABLE I (Continued)  
TEST METHOD 5906 - HORIZONTAL

Part 1 - General Tests - Representative Materials

| Material<br>No. | Code | Ignition<br>Time<br>(min.) | Flaming<br>Time<br>(min.) | Burn Length<br>(Measured From<br>Start Wire)<br>(in.) | Burn Rate<br>(Measured From<br>Start Wire)<br>(in./min.) | Burn Rate                        |                               | Remarks                      |
|-----------------|------|----------------------------|---------------------------|-------------------------------------------------------|----------------------------------------------------------|----------------------------------|-------------------------------|------------------------------|
|                 |      |                            |                           |                                                       |                                                          | Initial<br>1.5 in.<br>(in./min.) | Final<br>10 in.<br>(in./min.) |                              |
| 93              | P2   | 0.07                       | 1.03                      | 0.0                                                   | I                                                        |                                  |                               | Very heavy gray smoke        |
| 93              |      | 0.05                       | 1.08                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 93              |      | 0.05                       | 0.92                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 93              |      | 0.07                       | 0.95                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| Avg.            |      | 0.06                       | 1.00                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 94              | P2   | 0.05                       | 1.20                      | 0.0                                                   | I                                                        |                                  |                               | Heavy gray smoke; acrid odor |
| 94              |      | 0.07                       | 1.22                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 94              |      | 0.07                       | 1.30                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 94              |      | 0.07                       | 1.08                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| Avg.            |      | 0.07                       | 1.20                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 95              | SI   | 0.02                       | 0.23                      | 0.0                                                   | I                                                        |                                  |                               | Very acrid odor              |
| 95              |      | 0.03                       | 0.27                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| Avg.            |      | 0.03                       | 0.25                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 96              | SI   | 0.02                       | 0.84                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 96              |      | 0.02                       | 0.59                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 96              |      | 0.02                       | 0.75                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 96              |      | 0.02                       | 0.59                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| Avg.            |      | 0.02                       | 0.69                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 97              | SI   | 0.02                       | 0.87                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 97              |      | 0.02                       | 0.75                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 97              |      | 0.02                       | 0.72                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 97              |      | 0.02                       | 0.75                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| Avg.            |      | 0.02                       | 0.77                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 98              | SI   | 0.02                       | 0.62                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 98              |      | 0.02                       | 0.59                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 98              |      | 0.02                       | 0.84                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| 98              |      | 0.02                       | 0.85                      | 0.0                                                   | I                                                        |                                  |                               |                              |
| Avg.            |      | 0.02                       | 0.73                      | 0.0                                                   |                                                          |                                  |                               |                              |

TABLE I (Continued)  
TEST METHOD 5906 - HORIZONTAL

Part 1 - General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Flaming<br>Time<br>(min.) | Burn Length<br>(Measured From<br>Start Wire)<br>(in.) | Burn Rate<br>(Measured From<br>Start Wire)<br>(in./min.) |            | Burn Rate<br>Initial<br>1.5 in.<br>(in./min.) | Burn Rate<br>Final<br>10 in.<br>(in./min.) | Remarks                        |
|----------------------|----------------------------|---------------------------|-------------------------------------------------------|----------------------------------------------------------|------------|-----------------------------------------------|--------------------------------------------|--------------------------------|
|                      |                            |                           |                                                       | (in./min.)                                               | (in./min.) |                                               |                                            |                                |
| 99 R2                | 0.07                       | 3.25                      | 0.5                                                   | 0.3                                                      | 0.3        | 0.9                                           | II                                         | Pad burns more than nap        |
| 99                   | 0.07                       | 2.92                      | 0.0                                                   | I                                                        | I          |                                               |                                            |                                |
| Avgs.                | 0.07                       | 3.09                      | 0.3                                                   | 0.2                                                      | 0.2        | 0.9                                           | II                                         |                                |
| 100 R1               | 0.07                       | 1.50                      | 0.0                                                   | I                                                        | I          |                                               |                                            | Heavy smoke; acrid odor        |
| 100                  | 0.07                       | 1.33                      | 0.0                                                   | I                                                        | I          |                                               |                                            |                                |
| Avgs.                | 0.07                       | 1.42                      | 0.0                                                   | I                                                        | I          |                                               |                                            |                                |
| 107 S1               | 0.03                       | 0.59                      | 0.0                                                   | I                                                        | I          |                                               |                                            | Heavy, sooty smoke; acrid odor |
| 108 S1               | 0.03                       | 0.13                      | 0.0                                                   | I                                                        | I          |                                               |                                            |                                |

TABLE I  
TEST METHOD 5906 - HORIZONTAL  
Part 2 - Special Tests - New, Used and Cleaned Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Flaming<br>Time<br>(min.) | Burn Length<br>(Measured From<br>Start Wire)<br>(in.) | Burn Rate<br>(Measured From<br>Start Wire)<br>(in./min.) | Burn Rate                        |                               | Remarks     |
|----------------------|----------------------------|---------------------------|-------------------------------------------------------|----------------------------------------------------------|----------------------------------|-------------------------------|-------------|
|                      |                            |                           |                                                       |                                                          | Initial<br>1.5 in.<br>(in./min.) | Final<br>10 in.<br>(in./min.) |             |
| 13N F1               | 0.07                       | 7.12                      | 10.0                                                  | X                                                        | 3.3                              | 1.5                           | Light smoke |
| 13N                  | 0.07                       | 6.75                      | 10.0                                                  | X                                                        | 2.9                              | 1.6                           |             |
| Avr.                 | 0.07                       | 6.93                      | 10.0                                                  | X                                                        | 3.1                              | 1.5                           |             |
| 13NC F1              | 0.05                       | 6.72                      | 10.0                                                  | X                                                        | 2.3                              | 1.7                           | Light smoke |
| 13NC                 | 0.05                       | 6.59                      | 10.0                                                  | X                                                        | 2.4                              | 1.7                           |             |
| Avr.                 | 0.05                       | 6.65                      | 10.0                                                  | X                                                        | 2.3                              | 1.7                           |             |
| 13U F1               | 0.07                       | 6.25                      | 10.0                                                  | X                                                        | 3.1                              | 1.7                           | Light smoke |
| 13U                  | 0.07                       | 7.03                      | 10.0                                                  | X                                                        | 3.0                              | 1.5                           |             |
| Avr.                 | 0.07                       | 6.64                      | 10.0                                                  | X                                                        | 3.1                              | 1.6                           |             |
| 13UC F1              | 0.07                       | 6.92                      | 10.0                                                  | X                                                        | 3.3                              | 1.6                           | Light smoke |
| 13UC                 | 0.07                       | 7.20                      | 10.0                                                  | X                                                        | 3.1                              | 1.5                           |             |
| Avr.                 | 0.07                       | 7.06                      | 10.0                                                  | X                                                        | 3.2                              | 1.5                           |             |
| 18N F1               | 0.07                       | 2.18                      | 10.0                                                  | X                                                        | 5.8                              | 5.4                           |             |
| 18N                  | 0.05                       | 2.17                      | 10.0                                                  | X                                                        | 5.4                              | 5.4                           |             |
| Avr.                 | 0.06                       | 2.18                      | 10.0                                                  | X                                                        | 5.6                              | 5.4                           |             |
| 18NC F1              | 0.07                       | 2.07                      | 10.0                                                  | X                                                        | 7.1                              | 5.6                           |             |
| 18NC                 | 0.07                       | 2.03                      | 10.0                                                  | X                                                        | 7.1                              | 5.7                           |             |
| Avr.                 | 0.07                       | 2.05                      | 10.0                                                  | X                                                        | 7.1                              | 5.7                           |             |
| 18U F1               | 0.07                       | 2.05                      | 10.0                                                  | X                                                        | 7.1                              | 5.6                           |             |
| 18U                  | 0.07                       | 2.37                      | 10.0                                                  | X                                                        | 3.9                              | 5.2                           |             |
| Avr.                 | 0.07                       | 2.21                      | 10.0                                                  | X                                                        | 5.5                              | 5.4                           |             |
| 18UC F1              | 0.05                       | 1.72                      | 10.0                                                  | X                                                        | 6.5                              | 6.9                           |             |
| 18UC                 | 0.05                       | 1.99                      | 10.0                                                  | X                                                        | 6.8                              | 5.8                           |             |
| Avr.                 | 0.05                       | 1.85                      | 10.0                                                  | X                                                        | 6.6                              | 6.3                           |             |

TABLE I (Continued)  
TEST METHOD 5906 - HORIZONTAL

Part 2 - Special Tests - New, Used and Cleaned Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Flaming<br>Time<br>(min.) | Burn Length<br>(Measured From<br>Start Wire)<br>(in.) | Burn Rate<br>(Measured From<br>Start Wire)<br>(in./min.) | Burn Rate                        |                               | Remarks                                                     |
|----------------------|----------------------------|---------------------------|-------------------------------------------------------|----------------------------------------------------------|----------------------------------|-------------------------------|-------------------------------------------------------------|
|                      |                            |                           |                                                       |                                                          | Initial<br>1.5 in.<br>(in./min.) | Final<br>10 in.<br>(in./min.) |                                                             |
| 19N P1               | 0.07                       | 0.20                      | 0.0                                                   | I                                                        |                                  |                               | Light smoke; melts, drips to bottom<br>of cabinet and burns |
| 19N                  | 0.07                       | 0.13                      | 0.0                                                   | I                                                        |                                  |                               |                                                             |
| Avg.                 | 0.07                       | 0.17                      | 0.0                                                   | I                                                        |                                  |                               |                                                             |
| 19NC P1              | 0.07                       | 2.89                      | 10.0                                                  | X                                                        | 6.8                              | 3.8                           |                                                             |
| 19NC                 | 0.07                       | 3.7                       | 10.0                                                  | X                                                        | 5.4                              | 3.5                           |                                                             |
| Avg.                 | 0.07                       | 3.3                       | 10.0                                                  | X                                                        | 6.1                              | 3.6                           |                                                             |
| 19U P1               | 0.05                       | 0.32                      | 0.0                                                   | I                                                        |                                  |                               |                                                             |
| 19U                  | 0.05                       | 2.22                      | 10.0                                                  | X                                                        | 3.3                              | 5.8                           |                                                             |
| Avg.                 | 0.05                       | 1.27                      | 5.0                                                   | 2.9                                                      | 3.3                              | 11                            |                                                             |
| 19UC P1              | 0.05                       | 2.46                      | 10.0                                                  | X                                                        | 6.8                              | 4.7                           |                                                             |
| 19UC                 | 0.05                       | 2.08                      | 10.0                                                  | X                                                        | 6.5                              | 5.6                           |                                                             |
| Avg.                 | 0.05                       | 2.28                      | 10.0                                                  | X                                                        | 6.6                              | 5.2                           |                                                             |
| 20N P1               | 0.07                       | 2.77                      | 10.0                                                  | X                                                        | 4.5                              | 4.2                           | Light smoke; melts, drips to bottom<br>of cabinet and burns |
| 20N                  | 0.05                       | 3.25                      | 10.0                                                  | X                                                        | 3.8                              | 3.6                           |                                                             |
| Avg.                 | 0.06                       | 3.01                      | 10.0                                                  | X                                                        | 4.1                              | 3.9                           |                                                             |
| 20NC P1              | 0.05                       | 3.08                      | 10.0                                                  | X                                                        | 4.7                              | 3.7                           |                                                             |
| 20NC                 | 0.07                       | 3.43                      | 10.0                                                  | X                                                        | 5.0                              | 3.3                           |                                                             |
| Avg.                 | 0.06                       | 3.25                      | 10.0                                                  | X                                                        | 4.8                              | 3.5                           |                                                             |
| 20U P1               | 0.05                       | 0.42                      | 0.0                                                   | I                                                        |                                  |                               |                                                             |
| 20U                  | 0.05                       | 0.25                      | 0.0                                                   | I                                                        |                                  |                               |                                                             |
| Avg.                 | 0.05                       | 0.34                      | 0.0                                                   | I                                                        |                                  |                               |                                                             |
| 20UC P1              | 0.05                       | 0.59                      | 0.2                                                   | .0                                                       | 4.5                              | 11                            |                                                             |
| 20UC                 | 0.05                       | 2.38                      | 6.5                                                   | 3.6                                                      | 2.9                              | 11                            |                                                             |
| Avg.                 | 0.05                       | 1.98                      | 3.4                                                   | 2.3                                                      | 3.1                              | 11                            |                                                             |

TABLE I (Continued)  
TEST METHOD 5906 - HORIZONTAL

Part 2 - Special Tests - New, Used and Cleaned Materials

| Material<br>No.<br>Code | Ignition<br>Time<br>(min.) | Flaming,<br>sec.<br>(min.) | Burn Length<br>(Measured From<br>Start Wire)<br>(in.) | Burn Rate<br>(Measured From<br>Start Wire)<br>(in./min.) | Burn Rate<br>Initial Final<br>1.5 in. 10 in.<br>(in./min.) (in./min.) | Remarks                |
|-------------------------|----------------------------|----------------------------|-------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------------------|------------------------|
| 27NC R2                 | 0.07                       | 4.00                       | 0.0                                                   | I                                                        |                                                                       | Test stopped           |
| 27NC                    | 0.07                       | 4.00                       | 0.0                                                   | I                                                        |                                                                       |                        |
| Avg.                    | 0.07                       | 4.00                       | 0.0                                                   | I                                                        |                                                                       |                        |
| 27U R2                  | 0.07                       | 9.00                       | 3.5                                                   | 0.5                                                      | 0.7                                                                   | Test stopped<br>Note 2 |
| 27U                     | 0.07                       | 5.00                       | 0.5                                                   | 0.2                                                      | 0.7                                                                   |                        |
| Avg.                    | 0.07                       | 7.00                       | 2.0                                                   | 0.4                                                      | 0.7                                                                   |                        |
| 27UC R2                 | 0.08                       | 6.00                       | 1.0                                                   | 0.3                                                      | 0.6                                                                   | Test stopped           |
| 27UC                    | 0.08                       | 5.00                       | 1.0                                                   | 0.4                                                      | 0.6                                                                   |                        |
| Avg.                    | 0.08                       | 5.50                       | 1.0                                                   | 0.4                                                      | 0.6                                                                   |                        |
| 99N R2                  | 0.07                       | 3.25                       | 0.5                                                   | 1.1                                                      | 0.5                                                                   | Note 3                 |
| 99N                     | 0.07                       | 2.92                       | 0.0                                                   | I                                                        |                                                                       |                        |
| Avg.                    | 0.07                       | 3.08                       | 0.3                                                   | 0.6                                                      | 0.3                                                                   |                        |
| 99NC R2                 | 0.07                       | 3.33                       | 0.0                                                   | I                                                        |                                                                       | Test stopped           |
| 99NC                    | 0.07                       | 3.33                       | 0.0                                                   | I                                                        |                                                                       |                        |
| Avg.                    | 0.07                       | 3.33                       | 0.0                                                   | I                                                        |                                                                       |                        |
| 99U R2                  | 0.08                       | 4.25                       | 0.0                                                   | I                                                        |                                                                       |                        |
| 99U                     | 0.08                       | 4.84                       | 0.0                                                   | I                                                        |                                                                       |                        |
| Avg.                    | 0.08                       | 4.54                       | 0.0                                                   | I                                                        |                                                                       |                        |
| 99UC R2                 | 0.08                       | 4.35                       | 0.5                                                   | 0.5                                                      | 0.5                                                                   |                        |
| 99UC                    | 0.08                       | 6.59                       | 1.5                                                   | 0.5                                                      | 0.5                                                                   |                        |
| Avg.                    | 0.08                       | 5.47                       | 1.0                                                   | 0.5                                                      | 0.5                                                                   |                        |

TABLE I (Continued)  
TEST METHOD 5906 - HORIZONTAL

Part 2 - Special Tests - New, Used and Cleaned Materials

| Material<br>No. | Code | Ignition<br>Time<br>(min.) | Flaming<br>Time<br>(min.) | Burn Length<br>(Measured From<br>Start Wire)<br>(in.) | Burn Rate<br>(Measured From<br>Start Wire)<br>(in./min.) | Burn Rate                        |                               | Remarks |
|-----------------|------|----------------------------|---------------------------|-------------------------------------------------------|----------------------------------------------------------|----------------------------------|-------------------------------|---------|
|                 |      |                            |                           |                                                       |                                                          | Initial<br>1.5 in.<br>(in./min.) | Final<br>10 in.<br>(in./min.) |         |
| 100N            | R1   | 0.07                       | 1.50                      | 0.0                                                   | I                                                        |                                  |                               | Note 3  |
| 100N            | R1   | 0.07                       | 1.33                      | 0.0                                                   | I                                                        |                                  |                               | Note 3  |
| Avg.            |      | 0.07                       | 1.42                      | 0.0                                                   | I                                                        |                                  |                               |         |
| 100NC           | R1   | 0.08                       | 1.50                      | 0.0                                                   | I                                                        |                                  |                               | Note 3  |
| 100NC           |      | 0.08                       | 1.59                      | 0.0                                                   | I                                                        |                                  |                               | Note 3  |
| Avg.            |      | 0.08                       | 1.54                      | 0.0                                                   | I                                                        |                                  |                               |         |
| 100U            | R1   | 0.08                       | 2.00                      | 0.0                                                   | I                                                        |                                  |                               | Note 3  |
| 100U            |      | 0.08                       | 2.00                      | 0.0                                                   | I                                                        |                                  |                               | Note 3  |
| Avg.            |      | 0.08                       | 2.00                      | 0.0                                                   | I                                                        |                                  |                               |         |
| 100UC           | R1   | 0.07                       | 2.00                      | 0.0                                                   | I                                                        |                                  |                               | Note 3  |
| 100UC           |      | 0.07                       | 1.45                      | 0.0                                                   | I                                                        |                                  |                               |         |
| Avg.            |      | 0.07                       | 1.72                      | 0.0                                                   | I                                                        |                                  |                               |         |

Note 1: Letters after material no. signify: N - New; NC - New and Cleaned; U - Used; UC - Used and Cleaned.

Note 2: Test conducted with 0.042" aluminum sheet on top of pad which stopped burning.

Note 3: Material burned only in area of test flame.

I Burned less than 1.5 inches (start wire)

II Burned less than 11.5 inches (stop wire)

X Burned full length

TABLE II  
TEST METHOD PSS RELEASE 453

General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Flaming Time<br>(Measured After<br>15 sec. Burner<br>Removal)<br>(min.) | Burn Length<br>(Measured From<br>Start Wire)<br>(in.) | Burn Rate<br>(Measured From<br>Start Wire)<br>(in./min.) | Burn Rate                        |                               | Remarks |
|----------------------|----------------------------|-------------------------------------------------------------------------|-------------------------------------------------------|----------------------------------------------------------|----------------------------------|-------------------------------|---------|
|                      |                            |                                                                         |                                                       |                                                          | Initial<br>1.5 in.<br>(in./min.) | Final<br>10 in.<br>(in./min.) |         |
| 13 FI                | 0.03                       | 7.03                                                                    | 10.0                                                  | X                                                        | 2.3                              | 1.5                           |         |
| 13                   | 0.05                       | 2.52                                                                    | 2.9                                                   | 1.3                                                      | 2.6                              | II                            |         |
| AVG.                 | 0.04                       | 4.77                                                                    | 6.5                                                   | 1.4                                                      | 2.4                              | II                            |         |
| 14 FI                | 0.07                       | 5.53                                                                    | 10.0                                                  | X                                                        | 2.9                              | 1.9                           |         |
| 14                   | 0.07                       | 5.05                                                                    | 10.0                                                  | X                                                        | 3.2                              | 2.1                           |         |
| AVG.                 | 0.07                       | 5.29                                                                    | 10.0                                                  | X                                                        | 3.1                              | 2.0                           |         |
| 15 FI                | 0.05                       | 1.47                                                                    | 10.0                                                  | X                                                        | 4.5                              | 7.5                           |         |
| 15                   | 0.05                       | 1.32                                                                    | 3.0                                                   | 2.4                                                      | 6.0                              | II                            |         |
| 15                   | 0.05                       | 0.77                                                                    | 1.0                                                   | 1.4                                                      | 4.5                              | II                            |         |
| 15                   | 0.05                       | 1.98                                                                    | 8.6                                                   | 4.8                                                      | 9.0                              | II                            |         |
| AVG.                 | 0.05                       | 1.38                                                                    | 5.7                                                   | 4.0                                                      | 6.0                              | II                            |         |
| 16 FI                | 0.05                       | 0.65                                                                    | 0.5                                                   | 0.9                                                      | 5.6                              | II                            |         |
| 16                   | 0.05                       | 0.45                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 16                   | 0.05                       | 0.52                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 16                   | 0.03                       | 0.72                                                                    | 0.9                                                   | 1.5                                                      | 4.5                              | II                            |         |
| AVG.                 | 0.05                       | 0.59                                                                    | 0.5                                                   | 0.6                                                      | 5.0                              | II                            |         |
| 17 FI                | 0.07                       | 0.48                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 17                   | 0.07                       | 0.45                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 17                   | 0.07                       | 0.45                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 17                   | 0.07                       | 0.48                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| AVG.                 | 0.07                       | 0.47                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 18 FI                | 0.08                       | 2.59                                                                    | 10.0                                                  | X                                                        | 4.5                              | 4.1                           |         |
| 18                   | 0.13                       | 2.63                                                                    | 10.0                                                  | X                                                        | 4.5                              | 4.1                           |         |
| 18                   | 0.08                       | 3.02                                                                    | 10.0                                                  | X                                                        | 4.3                              | 3.5                           |         |
| 18                   | 0.07                       | 3.28                                                                    | 10.0                                                  | X                                                        | 4.3                              | 3.2                           |         |
| AVG.                 | 0.08                       | 2.83                                                                    | 10.0                                                  | X                                                        | 4.4                              | 3.7                           |         |
| 19 FI                | 0.07                       | 0.30                                                                    | 0.0                                                   | 0.0                                                      | 9.0                              | II                            |         |
| 19                   | 0.07                       | 2.74                                                                    | 10.0                                                  | X                                                        | 7.0                              | 3.7                           |         |
| 19                   | 0.07                       | 2.50                                                                    | 4.0                                                   | 2.2                                                      | 1.8                              | II                            |         |
| 19                   | 0.07                       | 2.50                                                                    | 3.0                                                   | 1.3                                                      | 4.5                              | II                            |         |
| AVG.                 | 0.07                       | 2.02                                                                    | 4.2                                                   | 1.8                                                      | 5.6                              | II                            |         |

TABLE II (Continued)  
TEST METHOD FSS RELEASE 453

General Tests - Representative Materials

| Material<br>No. | Code | Ignition<br>Time<br>(min.) | Flaming Time<br>(Measured After<br>15 sec. Burner<br>Removal)<br>(min.) | Burn Length<br>(Measured From<br>Start Wire)<br>(in.) | Burn Rate<br>(Measured From<br>Start Wire)<br>(in./min.) | Burn Rate                        |                               | Remarks |
|-----------------|------|----------------------------|-------------------------------------------------------------------------|-------------------------------------------------------|----------------------------------------------------------|----------------------------------|-------------------------------|---------|
|                 |      |                            |                                                                         |                                                       |                                                          | Initial<br>1.5 in.<br>(in./min.) | Final<br>10 in.<br>(in./min.) |         |
| 20              | F1   | 0.05                       | 3.33                                                                    | 10.0                                                  | X                                                        | 6.9                              | 3.0                           |         |
| 20              |      | 0.05                       | 0.48                                                                    | 0.3                                                   | 1.3                                                      | 3.3                              | II                            |         |
| 20              |      | 0.05                       | 0.00                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 20              |      | 0.05                       | 2.69                                                                    | 6.0                                                   | 2.6                                                      | 2.8                              | IX                            |         |
| Avg.            |      | 0.05                       | 1.62                                                                    | 4.1                                                   | 1.7                                                      | 4.3                              | II                            |         |
| 23              | F2   | 0.05                       | 2.10                                                                    | 10.0                                                  | X                                                        | 3.2                              | 5.1                           |         |
| 23              |      | 0.03                       | 2.10                                                                    | 10.0                                                  | X                                                        | 4.7                              | 5.0                           |         |
| 23              |      | 0.03                       | 2.18                                                                    | 10.0                                                  | X                                                        | 5.0                              | 5.1                           |         |
| Avg.            |      | 0.04                       | 2.12                                                                    | 10.0                                                  | X                                                        | 4.3                              | 5.0                           |         |
| 27              | R2   | 0.07                       | 1.25                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 27              |      | 0.07                       | 2.45                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 27              |      | 0.05                       | 1.92                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 27              |      | 0.05                       | 2.42                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| Avg.            |      | 0.06                       | 2.01                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 33              | S3   | 0.12                       | 0.03                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 33              |      | 0.10                       | 0.00                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 33              |      | 0.10                       | 0.00                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 33              |      | 0.10                       | 0.00                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| Avg.            |      | 0.10                       | 0.01                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 37              | F2   | 0.05                       | 3.52                                                                    | 10.0                                                  | X                                                        | 2.0                              | 3.4                           |         |
| 37              |      | 0.05                       | 3.35                                                                    | 10.0                                                  | X                                                        | 2.0                              | 3.5                           |         |
| Avg.            |      | 0.05                       | 3.43                                                                    | 10.0                                                  | X                                                        | 2.0                              | 3.5                           |         |
| 38              | F2   | 0.03                       | 2.95                                                                    | 10.0                                                  | X                                                        | 3.0                              | 3.7                           |         |
| 38              |      | 0.05                       | 2.82                                                                    | 10.0                                                  | X                                                        | 3.1                              | 3.9                           |         |
| Avg.            |      | 0.04                       | 2.89                                                                    | 10.0                                                  | X                                                        | 3.1                              | 3.8                           |         |
| 40              | F2   | 0.05                       | 1.70                                                                    | 10.0                                                  | X                                                        | 6.9                              | 5.9                           |         |
| 41              | R1   | 0.12                       | 1.97                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 41              |      | 0.12                       | 2.10                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 41              |      | 0.12                       | 2.32                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| Avg.            |      | 0.12                       | 2.13                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |

TABLE II (Continued)  
TEST METHOD FSS RELEASE 453

General Tests - Representative Materials

| Material<br>No. | Code | Ignition<br>Time<br>(min.) | Flaming Time<br>(Measured After<br>15 sec. Burner<br>Removal)<br>(min.) | Burn Length<br>(Measured From<br>Start Wire)<br>(in.) | Burn Rate<br>(Measured From<br>Start Wire)<br>(in./min.) | Burn Rate                        |                               | Remarks |
|-----------------|------|----------------------------|-------------------------------------------------------------------------|-------------------------------------------------------|----------------------------------------------------------|----------------------------------|-------------------------------|---------|
|                 |      |                            |                                                                         |                                                       |                                                          | Initial<br>1.5 in.<br>(in./min.) | Final<br>10 in.<br>(in./min.) |         |
| 42              | F1   | 0.07                       | 0.59                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 42              |      | 0.10                       | 0.55                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 42              |      | 0.12                       | 0.43                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 42              |      | 1.10                       | 0.59                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| Avg.            |      | 0.35                       | 0.54                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 43              | F1   | 0.07                       | 4.08                                                                    | 10.0                                                  | X                                                        | 3.6                              | 2.6                           |         |
| 43              |      | 0.07                       | 4.07                                                                    | 10.0                                                  | X                                                        | 3.3                              | 2.6                           |         |
| 43              |      | 0.07                       | 4.20                                                                    | 10.0                                                  | X                                                        | 2.6                              | 2.6                           |         |
| 43              |      | 0.07                       | 4.13                                                                    | 10.0                                                  | X                                                        | 3.8                              | 2.6                           |         |
| Avg.            |      | 0.07                       | 4.11                                                                    | 10.0                                                  | X                                                        | 3.6                              | 2.6                           |         |
| 44              | F1   | 0.07                       | 1.33                                                                    | 0.8                                                   | 1.5                                                      | 1.7                              | II                            |         |
| 44              |      | 0.07                       | 0.33                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 44              |      | 0.07                       | 2.55                                                                    | 1.8                                                   | 1.0                                                      | 1.6                              | II                            |         |
| Avg.            |      | 0.07                       | 1.48                                                                    | 0.9                                                   | 0.8                                                      | 1.1                              | II                            |         |
| 45              | F1   | 0.05                       | 5.07                                                                    | 10.0                                                  | X                                                        | 2.7                              | 2.1                           |         |
| 45              |      | 0.05                       | 5.42                                                                    | 10.0                                                  | X                                                        | 2.6                              | 2.0                           |         |
| Avg.            |      | 0.05                       | 5.24                                                                    | 10.0                                                  | X                                                        | 2.7                              | 2.1                           |         |
| 49              | F2   | 0.07                       | 0.55                                                                    | 0.2                                                   | 0.9                                                      | 3.0                              | II                            |         |
| 49              |      | 0.07                       | 0.42                                                                    | 0.2                                                   | 5.0                                                      | 2.6                              | II                            |         |
| Avg.            |      | 0.07                       | 0.49                                                                    | 0.2                                                   | 3.0                                                      | 2.6                              | II                            |         |
| 50              | F2   | 0.07                       | 0.87                                                                    | 0.8                                                   | 2.4                                                      | 2.1                              | II                            |         |
| 50              |      | 0.07                       | 0.13                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 50              |      | 0.07                       | 1.10                                                                    | 0.8                                                   | 0.9                                                      | 3.7                              | II                            |         |
| 50              |      | 0.07                       | 1.33                                                                    | 1.5                                                   | 1.4                                                      | 3.5                              | II                            |         |
| Avg.            |      | 0.07                       | 0.86                                                                    | 0.8                                                   | 1.2                                                      | 3.1                              | II                            |         |
| 64              | F2   | 0.03                       | 0.25                                                                    | 1.2                                                   | 3.6                                                      | 11.3                             | II                            |         |
| 64              |      | 0.02                       | 0.00                                                                    | 0.7                                                   | 8.4                                                      | 10.1                             | II                            |         |
| 64              |      | 0.02                       | 0.00                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 64              |      | 0.02                       | 0.25                                                                    | 1.8                                                   | 5.4                                                      | 10.1                             | II                            |         |
| Avg.            |      | 0.02                       | 0.13                                                                    | 0.9                                                   | 4.4                                                      | 10.1                             | II                            |         |

TABLE II (Continued)

TEST METHOD FSS RELEASE 453

## General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Flaming Time<br>(Measured After<br>15 sec. Burner<br>Removal)<br>(min.) | Burn Length<br>(Measured From<br>Start Wire)<br>(in.) | Burn Rate<br>(Measured From<br>Start Wire)<br>(in./min.) | Burn Rate                        |                               | Remarks |
|----------------------|----------------------------|-------------------------------------------------------------------------|-------------------------------------------------------|----------------------------------------------------------|----------------------------------|-------------------------------|---------|
|                      |                            |                                                                         |                                                       |                                                          | Initial<br>1.5 in.<br>(in./min.) | Final<br>10 in.<br>(in./min.) |         |
| 67 F3                | 0.08                       | 0.00                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 67                   | 0.05                       | 0.03                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 67                   | 0.05                       | 0.07                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 67                   | 0.05                       | 0.59                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| Avg.                 | 0.06                       | 0.17                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 89 F3                | 0.07                       | 0.03                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 89                   | 0.07                       | 0.03                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 89                   | 0.07                       | 0.02                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| 89                   | 0.07                       | 0.05                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |
| Avg.                 | 0.07                       | 0.03                                                                    | 0.0                                                   | I                                                        |                                  |                               |         |

I Burned less than 1.5 inches (start wire)

II Burned less than 11.5 inches (stop wire)

X Burned full length

TABLE III  
TEST METHOD 5902 - VERTICAL

Part 1 - General Tests - Representative Materials

| Material<br>No. | Code | Flaming Time               |                                                         | Glow Time<br>(Measured After<br>Flameout) | Burn<br>Length<br>(in.) | Char<br>Length<br>(in.) | Burn Rate                                                     |                      | Remarks     |
|-----------------|------|----------------------------|---------------------------------------------------------|-------------------------------------------|-------------------------|-------------------------|---------------------------------------------------------------|----------------------|-------------|
|                 |      | Ignition<br>Time<br>(min.) | (Measured After<br>12 sec. Burner<br>Removal)<br>(min.) |                                           |                         |                         | (12 sec. Burner<br>Time Incl. sec.)<br>0-12 in.<br>(in./min.) | 12 in.<br>(in./min.) |             |
| 1               | R1   | 0.05                       | 0.27                                                    |                                           | 3.5                     | 0.3                     | 8.4                                                           | I                    |             |
| 1               |      | 0.05                       | 0.23                                                    |                                           | 2.0                     | 0.0                     | 5.2                                                           | I                    |             |
| 1               |      | 0.05                       | 0.08                                                    |                                           | 2.0                     | 0.0                     | 8.6                                                           | I                    |             |
| Avg.            |      | 0.05                       | 0.19                                                    |                                           | 2.5                     | 0.1                     | 7.4                                                           | I                    |             |
| 2               | F1   | 0.03                       | 1.08                                                    |                                           | 7.0                     | 7.0                     | 5.6                                                           | I                    |             |
| 3               | F1   | 0.03                       | 0.00                                                    |                                           | 6.8                     | 6.8                     | 40.0                                                          | I                    |             |
| 4               | F1   | 0.03                       | 0.00                                                    |                                           | 5.8                     | 5.8                     | 34.1                                                          | I                    |             |
| 5               | P2   | 0.05                       | 0.00                                                    | 0.05                                      | 2.5                     | 3.0                     | 16.7                                                          | I                    |             |
| 5               |      | 0.03                       | 0.00                                                    | 0.05                                      | 2.5                     | 0.7                     | 15.0                                                          | I                    |             |
| Avg.            |      | 0.04                       | 0.00                                                    |                                           | 2.5                     | 1.9                     | 15.8                                                          | I                    |             |
| 6               | F1   | 0.05                       | 0.77                                                    | 1.25                                      | 12.0                    | 12.0                    | X                                                             | 13.1                 |             |
| 6               |      | 0.05                       | 0.84                                                    | 1.33                                      | 12.0                    | 12.0                    | X                                                             | 12.2                 |             |
| 6               |      | 0.03                       | 0.72                                                    | 1.33                                      | 12.0                    | 12.0                    | X                                                             | 13.6                 |             |
| Avg.            |      | 0.05                       | 0.77                                                    |                                           | 12.0                    | 12.0                    | X                                                             | 12.9                 |             |
| 7               | F1   | 0.05                       | 1.12                                                    |                                           | 12.0                    | 12.0                    | X                                                             | 9.5                  |             |
| 7               |      | 0.05                       | 1.15                                                    |                                           | 12.0                    | 12.0                    | X                                                             | 9.1                  |             |
| 7               |      | 0.05                       | 1.15                                                    |                                           | 12.0                    | 12.0                    | X                                                             | 9.2                  |             |
| Avg.            |      | 0.05                       | 1.14                                                    |                                           | 12.0                    | 12.0                    | X                                                             | 9.3                  |             |
| 8               | F1   | 0.07                       | 1.25                                                    |                                           | 10.0                    | 9.1                     | 7.2                                                           | I                    |             |
| 8               |      | 0.05                       | 1.37                                                    |                                           | 6.0                     | 9.0                     | 4.0                                                           | I                    |             |
| 8               |      | 0.05                       | 1.87                                                    |                                           | 11.0                    | 9.0                     | 5.5                                                           | I                    |             |
| Avg.            |      | 0.05                       | 1.50                                                    |                                           | 9.0                     | 9.0                     | 5.6                                                           | I                    |             |
| 9               | P2   | 0.03                       | 0.00                                                    |                                           | 6.1                     | 6.1                     | 36.5                                                          | I                    |             |
| 10              | S1   | 0.03                       | 0.10                                                    |                                           | 5.4                     | 5.4                     | 20.2                                                          | I                    | Heavy smoke |
| 10              |      | 0.03                       | 0.00                                                    |                                           | 4.5                     | 4.0                     | 26.9                                                          | I                    |             |
| Avg.            |      | 0.03                       | 0.05                                                    |                                           | 4.9                     | 4.7                     | 23.5                                                          | I                    |             |

TABLE III (Continued)  
TEST METHOD 5902 - VERTICAL

Part 1 - General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Flaming Time<br>(Measured After<br>12 sec. Burner<br>Removal)<br>(min.) | Glow Time<br>(Measured After<br>Flameout)<br>(min.) | Burn<br>Length<br>(in.) | Char<br>Length<br>(in.) | Burn Rate<br>(12 sec. Burner<br>Time Included) |                      | Remarks |
|----------------------|----------------------------|-------------------------------------------------------------------------|-----------------------------------------------------|-------------------------|-------------------------|------------------------------------------------|----------------------|---------|
|                      |                            |                                                                         |                                                     |                         |                         | 0-12 in.<br>(in./min.)                         | 12 in.<br>(in./min.) |         |
| 11 S3                | 0.03                       | 0.37                                                                    |                                                     | 3.0                     | 1.5                     | 5.6                                            | 1                    |         |
| 12 R1                | 0.07                       | 4.78                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 2.4                  |         |
| 12                   | 0.05                       | 3.84                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 3.0                  |         |
| AVG.                 | 0.06                       | 4.31                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 2.7                  |         |
| 13 F1                | 0.05                       | 2.75                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 4.1                  |         |
| 13                   | 0.05                       | 1.77                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 6.3                  |         |
| 13                   | 0.05                       | 1.30                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 8.3                  |         |
| 13                   | 0.05                       | 1.69                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 6.5                  |         |
| AVG.                 | 0.05                       | 1.88                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 6.4                  |         |
| 14 F1                | 0.05                       | 1.18                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 9.0                  |         |
| 14                   | 0.05                       | 1.07                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 9.9                  |         |
| 14                   | 0.05                       | 1.12                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 9.5                  |         |
| 14                   | 0.05                       | 1.08                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 9.7                  |         |
| AVG.                 | 0.05                       | 1.11                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 9.5                  |         |
| 15 F1                | 0.05                       | 0.69                                                                    |                                                     | 9.2                     | 7.5                     | 11.0                                           | 1                    |         |
| 15                   | 0.07                       | 0.75                                                                    |                                                     | 7.5                     | 4.6                     | 8.5                                            | 1                    |         |
| 15                   | 0.05                       | 0.62                                                                    |                                                     | 8.0                     | 11.5                    | 14.1                                           | 1                    |         |
| 15                   | 0.05                       | 0.87                                                                    |                                                     | 8.0                     | 9.0                     | 7.9                                            | 1                    |         |
| AVG.                 | 0.05                       | 0.68                                                                    |                                                     | 8.2                     | 8.1                     | 10.4                                           | 1                    |         |
| 16 F1                | 0.03                       | 0.45                                                                    |                                                     | 7.0                     | 3.0                     | 11.3                                           | 1                    |         |
| 16                   | 0.05                       | 0.55                                                                    |                                                     | 1.8                     | 5.5                     | 2.6                                            | 1                    |         |
| 16                   | 0.03                       | 0.38                                                                    |                                                     | 5.0                     | 6.5                     | 9.1                                            | 1                    |         |
| 16                   | 0.03                       | 0.57                                                                    |                                                     | 1.0                     | 5.0                     | 1.4                                            | 1                    |         |
| AVG.                 | 0.03                       | 0.49                                                                    |                                                     | 3.7                     | 5.0                     | 6.1                                            | 1                    |         |
| 17 F1                | 0.05                       | 1.13                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 9.4                  |         |
| 17                   | 0.05                       | 1.10                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 9.6                  |         |
| 17                   | 0.05                       | 1.13                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 9.4                  |         |
| 17                   | 0.05                       | 0.99                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 10.6                 |         |
| AVG.                 | 0.05                       | 1.09                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 9.8                  |         |

TABLE III (Continued)  
TEST METHOD 5902 - VERTICAL

Part 1 - General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Flaming Time<br>(Measured After<br>12 sec. Burner<br>Removal)<br>(min.) | Glow Time<br>(Measured After<br>Flameout)<br>(min.) | Burn<br>Length<br>(in.) | Char<br>Length<br>(in.) | Burn Rate<br>(12 sec. Burner<br>Time Included) |                      | Remarks                                        |
|----------------------|----------------------------|-------------------------------------------------------------------------|-----------------------------------------------------|-------------------------|-------------------------|------------------------------------------------|----------------------|------------------------------------------------|
|                      |                            |                                                                         |                                                     |                         |                         | 0-12 in.<br>(in./min.)                         | 12 in.<br>(in./min.) |                                                |
| 18 F1                | 0.07                       | 1.70                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 6.5                  | Melts, drips to bottom of<br>cabinet and burns |
| 18                   | 0.03                       | 1.30                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 8.2                  |                                                |
| 18                   | 0.03                       | 1.45                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 7.4                  |                                                |
| AVG.                 | 0.04                       | 1.48                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 7.4                  |                                                |
| 19 F1                | 0.08                       | 1.42                                                                    |                                                     | 8.0                     | 8.3                     | 5.2                                            | I                    | Melts, drips to bottom of<br>cabinet and burns |
| 19                   | 0.07                       | 0.99                                                                    |                                                     | 7.7                     | 7.8                     | 6.9                                            | I                    |                                                |
| 19                   | 0.03                       | 2.08                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 5.3                  |                                                |
| 19                   | 0.05                       | 1.10                                                                    |                                                     | 7.5                     | 8.1                     | 6.0                                            | I                    |                                                |
| AVG.                 | 0.06                       | 2.08                                                                    |                                                     | 8.8                     | 9.0                     | 5.9                                            | I                    |                                                |
| 20 F1                | 0.05                       | 0.65                                                                    |                                                     | 6.2                     | 6.2                     | 7.7                                            | I                    | Sooty smoke; acrid odor                        |
| 20                   | 0.05                       | 0.38                                                                    |                                                     | 7.7                     | 7.7                     | 14.4                                           | I                    |                                                |
| 20                   | 0.05                       | 1.10                                                                    |                                                     | 8.3                     | 8.3                     | 6.6                                            | I                    |                                                |
| 20                   | 0.05                       | 0.59                                                                    |                                                     | 5.4                     | 5.4                     | 7.3                                            | I                    |                                                |
| AVG.                 | 0.05                       | 0.68                                                                    |                                                     | 6.9                     | 6.9                     | 9.0                                            | I                    |                                                |
| 21 F2                | 0.05                       | 0.15                                                                    |                                                     | 3.5                     | 2.8                     | 11.7                                           | I                    | Heavy, sooty smoke; acrid odor                 |
| 21                   | 0.03                       | 0.08                                                                    |                                                     | 3.5                     | 2.8                     | 14.0                                           | I                    |                                                |
| 21                   | 0.03                       | 0.00                                                                    |                                                     | 3.0                     | 2.6                     | 18.0                                           | I                    |                                                |
| 21                   | 0.03                       | 0.00                                                                    |                                                     | 3.8                     | 3.1                     | 22.8                                           | I                    |                                                |
| AVG.                 | 0.04                       | 0.06                                                                    |                                                     | 3.4                     | 2.8                     | 16.6                                           | I                    |                                                |
| 22 F2                | 0.03                       | 0.00                                                                    |                                                     | 7.0                     | 1.0                     | 41.9                                           | I                    | Heavy, sooty smoke; acrid odor                 |
| 22                   | 0.03                       | 0.00                                                                    | 0.50                                                | 2.8                     | 1.2                     | 16.8                                           | I                    |                                                |
| 22                   | 0.05                       | 0.00                                                                    |                                                     | 2.6                     | 1.0                     | 17.3                                           | I                    |                                                |
| 22                   | 0.05                       | 0.00                                                                    |                                                     | 3.0                     | 1.1                     | 18.0                                           | I                    |                                                |
| AVG.                 | 0.04                       | 0.00                                                                    |                                                     | 3.9                     | 1.1                     | 23.5                                           | I                    |                                                |
| 23 F2                | 0.05                       | 0.78                                                                    |                                                     | 11.0                    | 9.5                     | 11.8                                           | I                    | Heavy, sooty smoke; acrid odor                 |
| 23                   | 0.03                       | 1.17                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 9.0                  |                                                |
| 23                   | 0.03                       | 1.08                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 9.6                  |                                                |
| 23                   | 0.03                       | 0.84                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 12.0                 |                                                |
| AVG.                 | 0.04                       | 1.03                                                                    |                                                     | 11.8                    | 11.4                    | 10.6                                           | I                    |                                                |

TABLE III (Continued)  
TEST METHOD 5902 - VERTICAL

Part 1 - General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Flaming Time<br>(Measured After<br>12 sec. Burner<br>Removal)<br>(min.) | Glow Time<br>(Measured After<br>Flameout)<br>(min.) | Burn<br>LeDath<br>(in.) | Char<br>Length<br>(in.) | Burn Rate<br>(12 sec. Burner<br>Time Included) |                      | Remarks                                |
|----------------------|----------------------------|-------------------------------------------------------------------------|-----------------------------------------------------|-------------------------|-------------------------|------------------------------------------------|----------------------|----------------------------------------|
|                      |                            |                                                                         |                                                     |                         |                         | 0-12 in.<br>(in./min.)                         | 12 in.<br>(in./min.) |                                        |
| 24 P2                | 0.03                       | 0.00                                                                    |                                                     | 3.8                     | 2.5                     | 22.8                                           | I                    |                                        |
| 24                   | 0.03                       | 0.00                                                                    |                                                     | 2.5                     | 2.0                     | 15.0                                           | I                    |                                        |
| 24                   | 0.03                       | 0.00                                                                    |                                                     | 3.0                     | 3.0                     | 18.0                                           | I                    |                                        |
| 24                   | 0.03                       | 0.00                                                                    |                                                     | 3.2                     | 3.4                     | 19.2                                           | I                    |                                        |
| AVG.                 | 0.03                       | 0.00                                                                    |                                                     | 3.1                     | 2.7                     | 18.8                                           | I                    |                                        |
| 25 L1                | 0.05                       | 0.07                                                                    |                                                     | 0.0                     | 0.0                     | 0.0                                            | I                    |                                        |
| 25                   | 0.05                       | 0.89                                                                    |                                                     | 1.5                     | 0.0                     | 1.4                                            | I                    |                                        |
| AVG.                 | 0.05                       | 0.48                                                                    |                                                     | 0.8                     | 0.0                     | 0.8                                            | I                    |                                        |
| 25                   | 0.05                       | 0.15                                                                    |                                                     | 2.0                     | 0.0                     | 6.7                                            | I                    | No. 25 specimen without pad<br>backing |
| 26 R1                | 0.07                       | 3.72                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 3.1                  | Heavy smoke                            |
| 26                   | 0.05                       | 3.92                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 2.9                  |                                        |
| 26                   | 0.05                       | 3.74                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 3.1                  |                                        |
| 26                   | 0.07                       | 3.59                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 3.2                  |                                        |
| AVG.                 | 0.06                       | 3.74                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 3.1                  |                                        |
| 27 R2                | 0.10                       | 6.12                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 1.9                  |                                        |
| 27                   | 0.10                       | 5.72                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 2.1                  |                                        |
| 27                   | 0.07                       | 6.25                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 1.9                  |                                        |
| 27                   | 0.07                       | 6.55                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 1.8                  |                                        |
| AVG.                 | 0.08                       | 6.16                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 1.9                  |                                        |
| 28 P2                | 0.05                       | 0.00                                                                    |                                                     | 2.3                     | 1.0                     | 15.3                                           | I                    |                                        |
| 28                   | 0.05                       | 0.00                                                                    | 0.20                                                | 1.9                     | 0.4                     | 12.7                                           | I                    |                                        |
| 28                   | 0.05                       | 0.00                                                                    | 0.03                                                | 2.7                     | 1.3                     | 18.0                                           | I                    |                                        |
| 28                   | 0.05                       | 0.00                                                                    |                                                     | 2.0                     | 0.5                     | 13.3                                           | I                    |                                        |
| AVG.                 | 0.05                       | 0.00                                                                    |                                                     | 1.6                     | 0.8                     | 14.8                                           | I                    |                                        |
| 29 L1                | 0.05                       | 0.00                                                                    | 0.08                                                | 2.0                     | 0.0                     | 13.3                                           | I                    |                                        |
| 29                   | 0.05                       | 0.00                                                                    | 0.12                                                | 4.0                     | 0.0                     | 26.6                                           | I                    |                                        |
| 29                   | 0.05                       | 0.00                                                                    | 0.10                                                | 3.5                     | 0.0                     | 23.3                                           | I                    |                                        |
| 29                   | 0.05                       | 0.00                                                                    | 0.12                                                | 3.0                     | 0.0                     | 20.0                                           | I                    |                                        |
| AVG.                 | 0.05                       | 0.00                                                                    | 0.11                                                | 3.1                     | 0.0                     | 20.8                                           | I                    |                                        |

TABLE III (Continued)  
TEST METHOD 5902 - VERTICAL

Part 1 - General Tests - Representative Materials

| Material<br>No. | Code | Ignition<br>Time<br>(min.) | Flaming Time<br>(Measured After<br>12 sec. Burner<br>Removal)<br>(min.) | Glow Time<br>(Measured After<br>Flameout)<br>(min.) | Burn<br>Length<br>(in.) | Char<br>Length<br>(in.) | Burn Rate<br>(17 sec. Burner<br>Time Included) |                      | Remarks          |
|-----------------|------|----------------------------|-------------------------------------------------------------------------|-----------------------------------------------------|-------------------------|-------------------------|------------------------------------------------|----------------------|------------------|
|                 |      |                            |                                                                         |                                                     |                         |                         | 0-12 in.<br>(in./min.)                         | 12 in.<br>(in./min.) |                  |
| 30              | S3   | 0.05                       | 0.00                                                                    |                                                     | 0.0                     | 0.0                     |                                                | I                    |                  |
| 30              |      | 0.05                       | 0.00                                                                    |                                                     | 0.0                     | 0.0                     |                                                | I                    |                  |
| 30              |      | 0.05                       | 0.00                                                                    |                                                     | 0.0                     | 0.0                     |                                                | I                    |                  |
| 30              |      | 0.05                       | 0.00                                                                    |                                                     | 0.0                     | 0.0                     |                                                | I                    |                  |
| AVG.            |      | 0.05                       | 0.00                                                                    |                                                     | 0.0                     | 0.0                     |                                                | I                    |                  |
| 31              | S3   | 0.03                       | 0.00                                                                    |                                                     | 0.0                     | 0.0                     |                                                | I                    |                  |
| 31              |      | 0.03                       | 0.00                                                                    |                                                     | 0.0                     | 0.0                     |                                                | I                    |                  |
| 31              |      | 0.03                       | 0.00                                                                    |                                                     | 0.0                     | 0.0                     |                                                | I                    |                  |
| 31              |      | 0.03                       | 0.00                                                                    |                                                     | 0.0                     | 0.0                     |                                                | I                    |                  |
| AVG.            |      | 0.03                       | 0.00                                                                    |                                                     | 0.0                     | 0.0                     |                                                | I                    |                  |
| 32              | S3   | 0.05                       | 3.45                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 3.3                  |                  |
| 32              |      | 0.05                       | 4.25                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 2.6                  |                  |
| 32              |      | 0.05                       | 4.43                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 2.6                  |                  |
| 32              |      | 0.05                       | 4.55                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 2.6                  |                  |
| AVG.            |      | 0.05                       | 4.17                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 2.8                  |                  |
| 33              | S3   | 0.05                       | 0.00                                                                    |                                                     | 0.0                     | 0.0                     | 0.0                                            | I                    | Very black smoke |
| 33              |      | 0.03                       | 2.84                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 4.0                  |                  |
| 33              |      | 0.05                       | 3.42                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 3.4                  |                  |
| 33              |      | 0.05                       | 2.67                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 4.3                  |                  |
| AVG.            |      | 0.05                       | 2.97                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 3.9                  |                  |
| 34              | S3   | 0.03                       | 0.00                                                                    |                                                     | 1.1                     | 0.0                     | 6.6                                            | I                    |                  |
| 34              |      | 0.03                       | 0.00                                                                    |                                                     | 1.0                     | 0.0                     | 6.0                                            | I                    |                  |
| 34              |      | 0.03                       | 0.00                                                                    |                                                     | 1.0                     | 0.0                     | 6.0                                            | I                    |                  |
| 34              |      | 0.03                       | 0.00                                                                    |                                                     | 1.2                     | 0.0                     | 7.2                                            | I                    |                  |
| AVG.            |      | 0.03                       | 0.00                                                                    |                                                     | 1.1                     | 0.0                     | 6.5                                            | I                    |                  |
| 35              | S2   | 0.03                       | 0.22                                                                    |                                                     | 3.0                     | 2.5                     | 8.0                                            | I                    |                  |
| 35              |      | 0.03                       | 2.07                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 5.4                  |                  |
| 35              |      | 0.03                       | 1.85                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 5.9                  |                  |
| 35              |      | 0.03                       | 1.85                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 5.9                  |                  |
| AVG.            |      | 0.03                       | 1.90                                                                    |                                                     | 9.8                     | 9.6                     | 6.3                                            | I                    |                  |
| 36              | F2   | 0.03                       | 2.55                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 4.4                  |                  |

TABLE III (Continued)  
TEST METHOD 5902 - VERTICAL

Part 1 - General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Flaming Time<br>(Measured After<br>12 sec. Burner<br>Removal)<br>(min.) | Glow Time<br>(Measured After<br>Flameout)<br>(min.) | Burn<br>Length<br>(in.) | Char<br>Length<br>(in.) | Burn Rate<br>(12 sec. Burner<br>Time Included) |                      | Remarks                    |
|----------------------|----------------------------|-------------------------------------------------------------------------|-----------------------------------------------------|-------------------------|-------------------------|------------------------------------------------|----------------------|----------------------------|
|                      |                            |                                                                         |                                                     |                         |                         | 0-12 in.<br>(in./min.)                         | 12 in.<br>(in./min.) |                            |
| 37 F2                | 0.03                       | 1.27                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 8.4                  |                            |
| 37                   | 0.05                       | 1.89                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 5.9                  |                            |
| Avg.                 | 0.04                       | 1.58                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 7.1                  |                            |
| 38 F2                | 0.03                       | 1.05                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 9.9                  |                            |
| 38                   | 0.03                       | 0.95                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 10.7                 |                            |
| Avg.                 | 0.03                       | 1.00                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 10.3                 |                            |
| 40 F2                | 0.03                       | 0.70                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 13.8                 |                            |
| 40                   | 0.03                       | 0.43                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 20.0                 |                            |
| 40                   | 0.03                       | 0.42                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 20.5                 |                            |
| 40                   | 0.03                       | 0.38                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 21.8                 |                            |
| Avg.                 | 0.03                       | 0.48                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 19.0                 |                            |
| 41 R1                | 0.07                       | 3.37                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 3.4                  | Heavy smoke                |
| 41                   | 0.05                       | 3.78                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 3.1                  |                            |
| 41                   | 0.07                       | 3.22                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 3.6                  |                            |
| 41                   | 0.05                       | 3.87                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 3.0                  |                            |
| Avg.                 | 0.06                       | 3.56                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 3.3                  |                            |
| 42 F1                | 0.03                       | 1.62                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 6.7                  | Heavy, black smoke         |
| 42                   | 0.03                       | 1.37                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 7.8                  |                            |
| 42                   | 0.03                       | 1.62                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 6.7                  |                            |
| 42                   | 0.03                       | 1.74                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 6.3                  |                            |
| Avg.                 | 0.03                       | 1.59                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 6.9                  |                            |
| 43 F1                | 0.03                       | 0.7                                                                     |                                                     | 12.0                    | 12.0                    | X                                              | 13.6                 | Moderate, blue-black smoke |
| 43                   | 0.05                       | 0.7                                                                     |                                                     | 12.0                    | 12.0                    | X                                              | 13.6                 |                            |
| 43                   | 0.03                       | 0.76                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 12.6                 |                            |
| 43                   | 0.03                       | 0.84                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 12.6                 |                            |
| Avg.                 | 0.03                       | 0.77                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 13.1                 |                            |
| 44 F1                | 0.05                       | 0.75                                                                    |                                                     | 10.0                    | 6.6                     | 11.1                                           | I                    |                            |
| 44                   | 0.05                       | 0.92                                                                    |                                                     | 10.0                    | 9.5                     | 9.4                                            | I                    |                            |
| 44                   | 0.05                       | 1.10                                                                    |                                                     | 10.5                    | 9.5                     | 8.0                                            | I                    |                            |
| 44                   | 0.05                       | 0.72                                                                    |                                                     | 11.0                    | 11.8                    | 12.7                                           | I                    |                            |
| Avg.                 | 0.05                       | 0.87                                                                    |                                                     | 10.4                    | 9.6                     | 10.3                                           | I                    |                            |

TABLE III (Continued)  
TEST METHOD 5902 - VERTICAL

Part 1 - General Tests - Representative Materials

| Material<br>No. | Code | Ignition<br>Time<br>(min.) | Flaming Time<br>(Measured After<br>12 sec. Burner<br>Removal)<br>(min.) | Glow Time<br>(Measured After<br>Flameout)<br>(min.) | Burn<br>Length<br>(in.) | Char<br>Length<br>(in.) | Burn Rate<br>(12 sec. Burner<br>Time Included) |                      | Remarks                    |
|-----------------|------|----------------------------|-------------------------------------------------------------------------|-----------------------------------------------------|-------------------------|-------------------------|------------------------------------------------|----------------------|----------------------------|
|                 |      |                            |                                                                         |                                                     |                         |                         | 0-12 in.<br>(in./min.)                         | 12 in.<br>(in./min.) |                            |
| 45              | F1   | 0.05                       | 1.28                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 8.4                  |                            |
| 45              |      | 0.03                       | 2.28                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 4.9                  |                            |
| 45              |      | 0.03                       | 1.25                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 8.5                  |                            |
| 45              |      | 0.03                       | 1.25                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 7.9                  |                            |
| Avg.            |      | 0.03                       | 1.54                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 7.4                  |                            |
| 46              | F2   | 0.05                       | 0.07                                                                    |                                                     | 1.3                     | 1.0                     | 8.3                                            | I                    |                            |
| 46              |      | 0.07                       | 0.23                                                                    |                                                     | 2.5                     | 2.2                     | 6.8                                            | I                    |                            |
| 46              |      | 0.05                       | 0.00                                                                    |                                                     | 1.7                     | 0.7                     | 11.3                                           | I                    |                            |
| 46              |      | 0.05                       | 0.00                                                                    |                                                     | 1.6                     | 0.2                     | 10.6                                           | I                    |                            |
| Avg.            |      | 0.06                       | 0.08                                                                    |                                                     | 1.9                     | 1.0                     | 9.2                                            | I                    |                            |
| 47              | S1   | 0.03                       | 0.64                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 15.0                 | Heavy, black smoke         |
| 47              |      | 0.03                       | 0.59                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 16.0                 |                            |
| 47              |      | 0.03                       | 0.62                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 15.3                 |                            |
| 47              |      | 0.03                       | 0.50                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 18.0                 |                            |
| Avg.            |      | 0.03                       | 0.59                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 16.1                 |                            |
| 48              | F2   | 0.07                       | 0.00                                                                    | 0.08                                                | 2.0                     | 0.6                     | 14.6                                           | I                    | Heavy smoke                |
| 48              |      | 0.05                       | 0.00                                                                    | 0.20                                                | 2.0                     | 0.9                     | 13.3                                           | I                    |                            |
| 48              |      | 0.07                       | 0.00                                                                    | 0.23                                                | 1.2                     | 1.2                     | 8.8                                            | I                    |                            |
| 48              |      | 0.07                       | 0.00                                                                    | 0.22                                                | 2.0                     | 0.9                     | 13.3                                           | I                    |                            |
| Avg.            |      | 0.06                       | 0.00                                                                    | 0.18                                                | 1.8                     | 0.9                     | 12.5                                           | I                    |                            |
| 49              | F2   | 0.05                       | 0.10                                                                    | 0.22                                                | 3.4                     | 0.5                     | 13.6                                           | I                    | Moderate, very sooty smoke |
| 49              |      | 0.05                       | 0.07                                                                    | 0.22                                                | 3.2                     | 0.5                     | 14.7                                           | I                    |                            |
| 49              |      | 0.03                       | 0.10                                                                    | 0.23                                                | 3.4                     | 0.6                     | 12.7                                           | I                    |                            |
| 49              |      | 0.02                       | 0.10                                                                    | 0.20                                                | 3.6                     | 0.6                     | 13.4                                           | I                    |                            |
| Avg.            |      | 0.04                       | 0.09                                                                    | 0.22                                                | 3.4                     | 0.6                     | 13.6                                           | I                    |                            |
| 50              | F2   | 0.03                       | 1.02                                                                    |                                                     | 12.0                    | 7.0                     | X                                              | 10.1                 |                            |
| 50              |      | 0.03                       | 0.52                                                                    |                                                     | 12.0                    | 5.0                     | X                                              | 17.5                 |                            |
| 50              |      | 0.03                       | 0.75                                                                    |                                                     | 12.0                    | 10.0                    | X                                              | 13.1                 |                            |
| 50              |      | 0.03                       | 0.84                                                                    |                                                     | 12.0                    | 4.0                     | X                                              | 15.0                 |                            |
| Avg.            |      | 0.03                       | 0.73                                                                    |                                                     | 12.0                    | 6.5                     | X                                              | 13.9                 |                            |

TABLE III (Continued)  
TEST METHOD 5902 - VERTICAL

Part 1 - General Tests - Representative Materials

| Material<br>No. | Code | Ignition<br>Time<br>(min.) | Flaming Time<br>(Measured After<br>12 sec. Burner<br>Removal)<br>(min.) | Glow Time<br>(Measured After<br>Flamout)<br>(min.) | Burn<br>Length<br>(in.) | Char<br>Length<br>(in.) | Burn Rate<br>(12 sec. Burner<br>Time Included) |                      | Remarks                                      |
|-----------------|------|----------------------------|-------------------------------------------------------------------------|----------------------------------------------------|-------------------------|-------------------------|------------------------------------------------|----------------------|----------------------------------------------|
|                 |      |                            |                                                                         |                                                    |                         |                         | 0-12 in.<br>(in./min.)                         | 12 in.<br>(in./min.) |                                              |
| 51              | F2   | 0.03                       | 0.00                                                                    |                                                    | 2.5                     | 0.2                     | 15.0                                           | I                    | Light gray, sooty smoke                      |
| 51              |      | 0.03                       | 0.00                                                                    |                                                    | 2.5                     | 1.0                     | 15.0                                           | I                    |                                              |
| 51              |      | 0.03                       | 0.00                                                                    |                                                    | 2.5                     | 1.0                     | 15.0                                           | I                    |                                              |
| 51              |      | 0.03                       | 0.00                                                                    |                                                    | 2.3                     | 1.0                     | 13.8                                           | I                    |                                              |
| Avg.            |      | 0.03                       | 0.00                                                                    |                                                    | 2.5                     | 0.8                     | 14.7                                           | I                    |                                              |
| 52              | F2   | 0.03                       | 0.00                                                                    |                                                    | 2.4                     | 1.0                     | 14.4                                           | I                    |                                              |
| 52              |      | 0.03                       | 0.00                                                                    |                                                    | 1.2                     | 0.5                     | 7.2                                            | I                    |                                              |
| 52              |      | 0.03                       | 0.00                                                                    |                                                    | 1.2                     | 0.0                     | 7.2                                            | I                    |                                              |
| 52              |      | 0.03                       | 0.00                                                                    |                                                    | 1.1                     | 0.0                     | 6.6                                            | I                    |                                              |
| Avg.            |      | 0.03                       | 0.00                                                                    |                                                    | 1.5                     | 0.4                     | 8.9                                            | I                    |                                              |
| 53              | F2   | 0.03                       | 0.00                                                                    | 0.02                                               | 4.5                     | 0.2                     | 27.0                                           | I                    |                                              |
| 53              |      | 0.03                       | 0.00                                                                    | 0.02                                               | 4.0                     | 0.3                     | 24.0                                           | I                    |                                              |
| 53              |      | 0.03                       | 0.00                                                                    |                                                    | 4.2                     | 0.2                     | 25.1                                           | I                    |                                              |
| 53              |      | 0.03                       | 0.00                                                                    |                                                    | 4.2                     | 0.2                     | 25.1                                           | I                    |                                              |
| Avg.            |      | 0.03                       | 0.00                                                                    |                                                    | 4.2                     | 0.2                     | 25.2                                           | I                    |                                              |
| 54              | F2   | 0.03                       | 0.00                                                                    |                                                    | 1.8                     | 0.0                     | 10.8                                           | I                    | Black, sooty smoke<br>Bubbles, gaseous flame |
| 54              |      | 0.03                       | 0.00                                                                    |                                                    | 1.0                     | 0.0                     | 6.0                                            | I                    |                                              |
| 54              |      | 0.03                       | 0.00                                                                    |                                                    | 1.0                     | 0.0                     | 6.0                                            | I                    |                                              |
| 54              |      | 0.03                       | 0.00                                                                    |                                                    | 0.8                     | 0.0                     | 4.8                                            | I                    |                                              |
| Avg.            |      | 0.03                       | 0.00                                                                    |                                                    | 1.2                     | 0.0                     | 6.9                                            | I                    |                                              |
| 55              | F2   | 0.05                       | 0.00                                                                    | 0.07                                               | 2.0                     | 0.0                     | 13.0                                           | I                    | Moderate, gray smoke                         |
| 55              |      | 0.03                       | 0.00                                                                    | 0.00                                               | 1.8                     | 0.0                     | 10.8                                           | I                    |                                              |
| 55              |      | 0.03                       | 0.00                                                                    | 0.07                                               | 1.6                     | 0.0                     | 9.6                                            | I                    |                                              |
| 55              |      | 0.03                       | 0.00                                                                    | 0.10                                               | 2.1                     | 0.0                     | 12.6                                           | I                    |                                              |
| Avg.            |      | 0.03                       | 0.00                                                                    |                                                    | 1.9                     | 0.0                     | 11.6                                           | I                    |                                              |
| 56              | F2   | 0.03                       | 0.00                                                                    | 0.03                                               | 2.0                     | 0.6                     | 12.0                                           | I                    | Bluish gray smoke                            |
| 56              |      | 0.03                       | 0.00                                                                    | 0.02                                               | 3.0                     | 1.3                     | 18.0                                           | I                    |                                              |
| 56              |      | 0.03                       | 0.00                                                                    | 0.03                                               | 2.6                     | 1.0                     | 15.6                                           | I                    |                                              |
| 56              |      | 0.03                       | 0.00                                                                    | 0.03                                               | 2.7                     | 0.8                     | 16.2                                           | I                    |                                              |
| Avg.            |      | 0.03                       | 0.00                                                                    |                                                    | 2.1                     | 0.9                     | 15.5                                           | I                    |                                              |

TABLE III (Continued)  
TEST METHOD 5902 - VERTICAL

Part 1 - General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Flaming Time<br>(Measured After<br>12 sec. Burner<br>Removal)<br>(min.) | Glow Time<br>(Measured After<br>Flameout)<br>(min.) | Burn<br>Length<br>(in.) | Char<br>Length<br>(in.) | Burn Rate<br>(12 sec. Burner<br>Time Incl. sec.)<br>1-12 in.<br>(in./min.) (in./min.) | Remarks                                                                   |
|----------------------|----------------------------|-------------------------------------------------------------------------|-----------------------------------------------------|-------------------------|-------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
|                      |                            |                                                                         |                                                     |                         |                         |                                                                                       |                                                                           |
| 57 L1                | 0.03                       | 0.00                                                                    |                                                     | 6.6                     | 1.0                     | 39.5                                                                                  | Vinyl melts, exposes perforations                                         |
| 57                   | 0.03                       | 0.00                                                                    |                                                     | 6.2                     | 0.7                     | 37.1                                                                                  |                                                                           |
| 57                   | 0.03                       | 0.00                                                                    | 0.05                                                | 6.9                     | 1.0                     | 41.3                                                                                  |                                                                           |
| 57                   | 0.03                       | 0.00                                                                    |                                                     | 7.1                     | 0.9                     | 42.5                                                                                  |                                                                           |
| AVG.                 | 0.03                       | 0.00                                                                    |                                                     | 6.7                     | 0.9                     | 40.1                                                                                  |                                                                           |
| 58 L2                | 0.05                       | 0.00                                                                    |                                                     | 3.2                     | 0.7                     | 21.3                                                                                  | Gold material<br>Bubbles, bursts into gaseous flame<br>Black, sooty smoke |
| 58                   | 0.03                       | 0.00                                                                    |                                                     | 3.0                     | 0.6                     | 18.0                                                                                  |                                                                           |
| 58                   | 0.03                       | 0.00                                                                    |                                                     | 3.1                     | 0.5                     | 12.0                                                                                  |                                                                           |
| 58                   | 0.03                       | 0.00                                                                    |                                                     | 3.0                     | 0.6                     | 18.0                                                                                  |                                                                           |
| AVG.                 | 0.03                       | 0.00                                                                    |                                                     | 3.1                     | 0.6                     | 18.8                                                                                  |                                                                           |
| 59 L2                | 0.03                       | 0.00                                                                    |                                                     | 3.7                     | 0.6                     | 22.2                                                                                  | Black, sooty smoke                                                        |
| 59                   | 0.03                       | 0.00                                                                    |                                                     | 3.7                     | 0.6                     | 22.2                                                                                  |                                                                           |
| 59                   | 0.03                       | 0.00                                                                    |                                                     | 3.3                     | 0.4                     | 17.8                                                                                  |                                                                           |
| 59                   | 0.03                       | 0.00                                                                    |                                                     | 3.6                     | 0.5                     | 21.6                                                                                  |                                                                           |
| AVG.                 | 0.03                       | 0.00                                                                    |                                                     | 3.5                     | 0.5                     | 20.9                                                                                  |                                                                           |
| 60 F2                | 0.02                       | 0.00                                                                    | 0.05                                                | 3.0                     | 0.4                     | 16.4                                                                                  | Blue gray smoke                                                           |
| 60                   | 0.02                       | 0.00                                                                    | 0.03                                                | 3.2                     | 0.3                     | 17.5                                                                                  |                                                                           |
| 60                   | 0.02                       | 0.00                                                                    | 0.03                                                | 3.4                     | 0.4                     | 18.6                                                                                  |                                                                           |
| 60                   | 0.02                       | 0.00                                                                    | 0.02                                                | 3.4                     | 0.3                     | 18.6                                                                                  |                                                                           |
| AVG.                 | 0.02                       | 0.00                                                                    |                                                     | 3.3                     | 0.4                     | 17.8                                                                                  |                                                                           |
| 61 F2                | 0.00                       | 0.00                                                                    |                                                     | 3.7                     | 3.7                     | 18.5                                                                                  | Blue gray smoke                                                           |
| 61                   | 0.07                       | 0.00                                                                    |                                                     | 4.5                     | 4.5                     | 33.8                                                                                  |                                                                           |
| 61                   | 0.05                       | 0.00                                                                    |                                                     | 5.4                     | 5.4                     | 40.6                                                                                  |                                                                           |
| AVG.                 | 0.04                       | 0.00                                                                    |                                                     | 4.5                     | 4.5                     | 31.0                                                                                  |                                                                           |
| 62 F2                | 0.03                       | 0.00                                                                    |                                                     | 5.2                     | 5.2                     | 31.1                                                                                  |                                                                           |
| 62                   | 0.03                       | 0.00                                                                    |                                                     | 5.7                     | 5.7                     | 34.1                                                                                  |                                                                           |
| 62                   | 0.03                       | 0.00                                                                    |                                                     | 5.0                     | 5.0                     | 30.0                                                                                  |                                                                           |
| 62                   | 0.03                       | 0.00                                                                    |                                                     | 4.4                     | 4.4                     | 26.3                                                                                  |                                                                           |
| AVG.                 | 0.03                       | 0.00                                                                    |                                                     | 5.1                     | 5.1                     | 30.4                                                                                  |                                                                           |

TABLE III (Continued)  
TEST METHOD 5902 - VERTICAL

Part I - General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Flaming Time<br>(Measured After<br>12 sec. Burner<br>Removal) |      | Glow Time<br>(Measured After<br>Flameout) | Burn<br>Length<br>(in.) | Char<br>Length<br>(in.) | Burn Rate<br>(12 sec. Burner<br>Time Included) |                      | Remarks                         |
|----------------------|----------------------------|---------------------------------------------------------------|------|-------------------------------------------|-------------------------|-------------------------|------------------------------------------------|----------------------|---------------------------------|
|                      |                            |                                                               |      |                                           |                         |                         | 0-12 in.<br>(in./min.)                         | 12 in.<br>(in./min.) |                                 |
| 63 F2                | 0.03                       | 0.00                                                          | 0.00 |                                           | 4.3                     | 4.3                     | 25.7                                           | I                    |                                 |
| 63                   | 0.02                       | 0.00                                                          | 0.00 |                                           | 5.7                     | 5.7                     | 31.1                                           | I                    |                                 |
| 63                   | 0.02                       | 0.00                                                          | 0.00 |                                           | 6.2                     | 6.2                     | 33.9                                           | I                    |                                 |
| 63                   | 0.02                       | 0.00                                                          | 0.00 |                                           | 4.4                     | 4.4                     | 24.0                                           | I                    |                                 |
| Avg.                 | 0.02                       | 0.00                                                          | 0.00 |                                           | 5.2                     | 5.2                     | 28.7                                           | I                    |                                 |
| 64 F2                | 0.02                       | 0.42                                                          | 0.42 |                                           | 12.0                    | 12.0                    | X                                              | 20.0                 | Heavy smoke                     |
| 64                   | 0.02                       | 0.38                                                          | 0.38 |                                           | 12.0                    | 12.0                    | X                                              | 21.2                 |                                 |
| 64                   | 0.02                       | 0.45                                                          | 0.45 |                                           | 12.0                    | 12.0                    | X                                              | 18.9                 |                                 |
| 64                   | 0.02                       | 0.48                                                          | 0.48 |                                           | 12.0                    | 12.0                    | X                                              | 18.0                 |                                 |
| Avg.                 | 0.02                       | 0.43                                                          | 0.43 |                                           | 12.0                    | 12.0                    | X                                              | 19.5                 |                                 |
| 65 F2                | 0.02                       | 0.00                                                          | 0.00 |                                           | 2.2                     | 0.0                     | 12.0                                           | I                    | Moderate, gray smoke            |
| 65                   | 0.02                       | 0.00                                                          | 0.00 |                                           | 2.0                     | 0.0                     | 10.9                                           | I                    |                                 |
| 65                   | 0.02                       | 0.00                                                          | 0.00 |                                           | 1.0                     | 0.0                     | 5.6                                            | I                    |                                 |
| 65                   | 0.02                       | 0.00                                                          | 0.00 |                                           | 1.2                     | 0.0                     | 6.6                                            | I                    |                                 |
| Avg.                 | 0.02                       | 0.00                                                          | 0.00 |                                           | 1.6                     | 0.0                     | 8.8                                            | I                    |                                 |
| 66 S1                | 0.02                       | 0.00                                                          | 0.00 |                                           | 3.2                     | 2.4                     | 17.5                                           | I                    |                                 |
| 66                   | 0.02                       | 0.00                                                          | 0.00 |                                           | 3.2                     | 2.4                     | 17.5                                           | I                    |                                 |
| 66                   | 0.02                       | 0.00                                                          | 0.00 |                                           | 4.4                     | 2.2                     | 24.0                                           | I                    |                                 |
| 66                   | 0.02                       | 0.00                                                          | 0.00 |                                           | 4.8                     | 2.2                     | 26.2                                           | I                    |                                 |
| Avg.                 | 0.02                       | 0.00                                                          | 0.00 |                                           | 3.9                     | 2.3                     | 21.3                                           | I                    |                                 |
| 67 F3                | 0.05                       | 1.23                                                          | 1.23 | 2.17                                      | 9.0                     | 8.5                     | 6.5                                            | I                    | Moderate, gray smoke, foul odor |
| 67                   | 0.05                       | 0.78                                                          | 0.78 | 2.00                                      | 5.0                     | 5.0                     | 5.4                                            | I                    |                                 |
| 67                   | 0.05                       | 0.92                                                          | 0.92 | 3.00                                      | 6.4                     | 5.8                     | 6.0                                            | I                    |                                 |
| 67                   | 0.05                       | 1.07                                                          | 1.07 | 3.92                                      | 8.0                     | 6.5                     | 6.5                                            | I                    |                                 |
| Avg.                 | 0.05                       | 1.00                                                          | 1.00 |                                           | 7.1                     | 6.5                     | 6.1                                            | I                    |                                 |
| 68 S1                | 0.02                       | 0.67                                                          | 0.67 |                                           | 12.0                    | 12.0                    | X                                              | 14.1                 |                                 |
| 68                   | 0.02                       | 0.95                                                          | 0.95 |                                           | 12.0                    | 12.0                    | X                                              | 10.6                 |                                 |
| 68                   | 0.02                       | 1.33                                                          | 1.33 |                                           | 8.0                     | 8.5                     | 5.3                                            | I                    |                                 |
| 68                   | 0.02                       | 0.75                                                          | 0.75 |                                           | 12.0                    | 12.0                    | X                                              | 12.8                 |                                 |
| Avg.                 | 0.02                       | 0.93                                                          | 0.93 |                                           | 11.0                    | 11.1                    | 13.2                                           | I                    |                                 |

TABLE III (Continued)

TEST METHOD 5902 - VERTICAL

## Part 1 - General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Flaming Time<br>(Measured After<br>12 sec. Burner<br>Removal)<br>(min.) | Glow Time<br>(Measured After<br>Flameout)<br>(min.) | Burn<br>Length<br>(in.) | Char<br>Length<br>(in.) | Burn Rate<br>(12 sec. Burner<br>Tissue Included) |                      | Remarks         |
|----------------------|----------------------------|-------------------------------------------------------------------------|-----------------------------------------------------|-------------------------|-------------------------|--------------------------------------------------|----------------------|-----------------|
|                      |                            |                                                                         |                                                     |                         |                         | 0-12 in.<br>(in./min.)                           | 12 in.<br>(in./min.) |                 |
| 69 S2                | 0.02                       | 0.00                                                                    |                                                     | 0.1                     | 0.0                     | 0.0                                              | 0.5                  | I               |
| 69                   | 0.02                       | 0.00                                                                    |                                                     | 0.1                     | 0.0                     | 0.0                                              | 0.5                  | I               |
| 69                   | 0.02                       | 0.00                                                                    |                                                     | 0.1                     | 0.0                     | 0.0                                              | 0.5                  | I               |
| 69                   | 0.02                       | 0.00                                                                    |                                                     | 0.1                     | 0.0                     | 0.0                                              | 0.5                  | I               |
| Avs.                 | 0.02                       | 0.00                                                                    |                                                     | 0.1                     | 0.0                     | 0.0                                              | 0.5                  | I               |
| 70 F1                | 0.03                       | 0.00                                                                    |                                                     | 6.4                     | 4.1                     | 38.3                                             | I                    | I               |
| 70                   | 0.02                       | 0.00                                                                    |                                                     | 6.4                     | 4.3                     | 35.0                                             | I                    | I               |
| 70                   | 0.02                       | 0.00                                                                    |                                                     | 5.4                     | 3.5                     | 30.0                                             | I                    | I               |
| 70                   | 0.02                       | 0.00                                                                    |                                                     | 5.6                     | 3.4                     | 30.6                                             | I                    | I               |
| Avs.                 | 0.02                       | 0.00                                                                    |                                                     | 6.0                     | 3.8                     | 33.5                                             | I                    | I               |
| 76 A                 | 0.00                       | 0.00                                                                    |                                                     | 0.0                     | 0.1                     | 0.0                                              | 0.0                  | I               |
| 76                   | 0.12                       | 0.00                                                                    |                                                     | 0.0                     | 0.1                     | 0.0                                              | 0.0                  | I               |
| Avs.                 |                            | 0.00                                                                    |                                                     | 0.0                     | 0.1                     | 0.0                                              | 0.0                  | I               |
| 77 S3                | 0.07                       | 9.75                                                                    |                                                     | 12.0                    | 12.0                    | X                                                | 1.2                  | Moderate smoke  |
| 77                   | 0.07                       | 7.12                                                                    |                                                     | 12.0                    | 12.0                    | X                                                | 1.7                  | Tremendous heat |
| Avs.                 |                            | 8.43                                                                    |                                                     | 12.0                    | 12.0                    | X                                                | 1.4                  |                 |
| 80 A                 | 0.12                       | 0.70                                                                    |                                                     | 0.0                     | 0.0                     | 0.0                                              | 0.0                  | I               |
| Avs.                 |                            | 0.20                                                                    |                                                     | 0.0                     | 0.0                     | 0.0                                              | 0.0                  | I               |
| 81 A                 | 0.08                       | 0.59                                                                    |                                                     | 0.0                     | 0.0                     | 0.0                                              | 0.0                  | I               |
| Avs.                 |                            | 0.59                                                                    |                                                     | 0.0                     | 0.0                     | 0.0                                              | 0.0                  | I               |
| 82 A                 | 0.07                       | 0.43                                                                    |                                                     | 0.0                     | 0.0                     | 0.0                                              | 0.0                  | I               |
| Avs.                 |                            | 0.43                                                                    |                                                     | 0.0                     | 0.0                     | 0.0                                              | 0.0                  | I               |
| 83 A                 | 0.07                       | 0.42                                                                    |                                                     | 0.0                     | 0.0                     | 0.0                                              | 0.0                  | I               |
| Avs.                 |                            | 0.42                                                                    |                                                     | 0.0                     | 0.0                     | 0.0                                              | 0.0                  | I               |
| 84 A                 | 0.05                       | 0.33                                                                    |                                                     | 0.0                     | 0.0                     | 0.0                                              | 0.0                  | I               |
| Avs.                 |                            | 0.33                                                                    |                                                     | 0.0                     | 0.0                     | 0.0                                              | 0.0                  | I               |

TABLE III (Continued)

## TEST METHOD 5902 - VERTICAL

## Part 1 - General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Flaming Time<br>(Measured After<br>12 sec. Burner<br>Removal)<br>(min.) | Glow Time<br>(Measured After<br>Flameout)<br>(min.) | Burn<br>Length<br>(in.) | Char<br>Length<br>(in.) | Burn Rate<br>(12 sec. Burner<br>Time Included) |                      | Remarks |
|----------------------|----------------------------|-------------------------------------------------------------------------|-----------------------------------------------------|-------------------------|-------------------------|------------------------------------------------|----------------------|---------|
|                      |                            |                                                                         |                                                     |                         |                         | 0-12 in.<br>(in./min.)                         | 12 in.<br>(in./min.) |         |
| 85 L3                | 0.00                       | 0.00                                                                    |                                                     | 0.0                     | 0.0                     | 0.0                                            | 0.0                  | I       |
| Avg.                 |                            | 0.00                                                                    |                                                     | 0.0                     | 0.0                     | 0.0                                            | 0.0                  | I       |
| 86 L3                | 0.00                       | 0.00                                                                    |                                                     | 0.0                     | 0.0                     | 0.0                                            | 0.0                  | I       |
| Avg.                 |                            | 0.00                                                                    |                                                     | 0.0                     | 0.0                     | 0.0                                            | 0.0                  | I       |
| 87 L3                | 0.00                       | 0.00                                                                    |                                                     | 0.0                     | 0.0                     | 0.0                                            | 0.0                  | I       |
| Avg.                 | 0.00                       | 0.00                                                                    |                                                     | 0.0                     | 0.0                     | 0.0                                            | 0.0                  | I       |
| 88 L3                | 0.00                       | 0.00                                                                    |                                                     | 0.0                     | 0.0                     | 0.0                                            | 0.0                  | I       |
| Avg.                 | 0.00                       | 0.00                                                                    |                                                     | 0.0                     | 0.0                     | 0.0                                            | 0.0                  | I       |
| 89 F3                | 0.07                       | 1.22                                                                    | 2.00                                                | 12.0                    | 12.0                    | X                                              | X                    | 8.8     |
| 89                   | 0.07                       | 1.53                                                                    | 2.50                                                | 12.0                    | 12.0                    | X                                              | X                    | 7.2     |
| 89                   | 0.07                       | 1.74                                                                    | 2.17                                                | 12.0                    | 12.0                    | X                                              | X                    | 6.4     |
| 89                   | 0.07                       | 1.67                                                                    | 2.33                                                | 12.0                    | 12.0                    | X                                              | X                    | 6.7     |
| Avg.                 | 0.07                       | 1.54                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | X                    | 7.3     |
| 92 F2                | 0.05                       | 0.02                                                                    |                                                     | 2.8                     | 2.8                     | 16.8                                           | 16.8                 | I       |
| 92                   | 0.05                       | 0.00                                                                    |                                                     | 3.2                     | 3.0                     | 21.3                                           | 21.3                 | I       |
| 92                   | 0.05                       | 0.33                                                                    |                                                     | 2.2                     | 3.0                     | 4.5                                            | 4.5                  | I       |
| 92                   | 0.05                       | 0.23                                                                    |                                                     | 3.2                     | 3.8                     | 8.4                                            | 8.4                  | I       |
| Avg.                 | 0.05                       | 0.15                                                                    |                                                     | 2.9                     | 3.2                     | 12.8                                           | 12.8                 | I       |
| 93 F2                | 0.05                       | 0.00                                                                    |                                                     | 1.6                     | 1.2                     | 10.0                                           | 10.0                 | I       |
| 93                   | 0.03                       | 0.05                                                                    |                                                     | 2.3                     | 2.0                     | 10.6                                           | 10.6                 | I       |
| 93                   | 0.03                       | 0.10                                                                    |                                                     | 2.0                     | 0.3                     | 7.5                                            | 7.5                  | I       |
| 93                   | 0.03                       | 1.17                                                                    |                                                     | 2.2                     | 2.0                     | 6.6                                            | 6.6                  | I       |
| Avg.                 | 0.03                       | 0.33                                                                    |                                                     | 2.0                     | 1.4                     | 8.7                                            | 8.7                  | I       |
| 94 F2                | 0.02                       | 0.07                                                                    |                                                     | 2.0                     | 0.2                     | 9.2                                            | 9.2                  | I       |
| 94                   | 0.07                       | 0.00                                                                    |                                                     | 1.6                     | 1.7                     | 9.6                                            | 9.6                  | I       |
| 94                   | 0.07                       | 0.00                                                                    |                                                     | 1.8                     | 1.5                     | 10.8                                           | 10.8                 | I       |
| 94                   | 0.07                       | 0.00                                                                    |                                                     | 1.7                     | 1.6                     | 10.2                                           | 10.2                 | I       |
| Avg.                 | 0.07                       | 0.01                                                                    |                                                     | 1.8                     | 1.3                     | 10.0                                           | 10.0                 | I       |

TABLE III (Continued)  
TEST METHOD 5902 - VERTICAL

Part 1 - General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Flaming Time<br>(Measured After<br>12 sec. Burner<br>Removal)<br>(min.) | Glow Time<br>(Measured After<br>Flame-out)<br>(min.) | Burn<br>Length<br>(in.) | Char<br>Length<br>(in.) | Burn Rate<br>(12 sec. Burner<br>Time Included)<br>0-12 in.<br>(in./min.) (in./min.) | Remarks |
|----------------------|----------------------------|-------------------------------------------------------------------------|------------------------------------------------------|-------------------------|-------------------------|-------------------------------------------------------------------------------------|---------|
| 95 S1                | 0.03                       | 0.00                                                                    |                                                      | 2.6                     | 2.9                     | 15.6                                                                                | I       |
| 95                   | 0.03                       | 0.00                                                                    |                                                      | 1.6                     | 2.0                     | 9.6                                                                                 | I       |
| AVG.                 | 0.03                       | 0.00                                                                    |                                                      | 2.1                     | 2.4                     | 12.6                                                                                | I       |
| 96 S1                | 0.02                       | 0.00                                                                    |                                                      | 2.0                     | 0.2                     | 10.9                                                                                | I       |
| 96                   | 0.02                       | 0.00                                                                    |                                                      | 2.0                     | 0.2                     | 10.9                                                                                | I       |
| 96                   | 0.02                       | 0.00                                                                    |                                                      | 2.0                     | 0.8                     | 10.9                                                                                | I       |
| 96                   | 0.02                       | 0.00                                                                    |                                                      | 2.0                     | 0.8                     | 10.9                                                                                | I       |
| AVG.                 | 0.02                       | 0.00                                                                    |                                                      | 2.0                     | 0.5                     | 10.9                                                                                | I       |
| 97 S1                | 0.02                       | 0.02                                                                    |                                                      | 3.0                     | 0.7                     | 15.0                                                                                | I       |
| 97                   | 0.02                       | 0.00                                                                    |                                                      | 3.0                     | 1.0                     | 16.3                                                                                | I       |
| 97                   | 0.02                       | 0.00                                                                    |                                                      | 2.5                     | 0.7                     | 13.7                                                                                | I       |
| 97                   | 0.02                       | 0.00                                                                    |                                                      | 2.5                     | 1.0                     | 13.7                                                                                | I       |
| AVG.                 | 0.02                       | 0.01                                                                    |                                                      | 2.7                     | 0.9                     | 14.6                                                                                | I       |
| 98 S1                | 0.02                       | 0.05                                                                    |                                                      | 3.0                     | 0.3                     | 12.9                                                                                | I       |
| 98                   | 0.02                       | 0.03                                                                    |                                                      | 3.5                     | 0.4                     | 16.2                                                                                | I       |
| 98                   | 0.02                       | 0.00                                                                    |                                                      | 3.4                     | 0.4                     | 18.6                                                                                | I       |
| 98                   | 0.02                       | 0.08                                                                    |                                                      | 3.4                     | 1.0                     | 12.8                                                                                | I       |
| AVG.                 | 0.02                       | 0.04                                                                    |                                                      | 3.3                     | 0.5                     | 15.1                                                                                | I       |
| 99 R2                | 0.07                       | 0.94                                                                    |                                                      | 1.2                     | 0.2                     | 1.1                                                                                 | I       |
| 99                   | 0.07                       | 1.08                                                                    |                                                      | 1.1                     | 0.2                     | 0.9                                                                                 | I       |
| AVG.                 | 0.07                       | 1.01                                                                    |                                                      | 1.1                     | 0.2                     | 1.0                                                                                 | I       |
| 100 R1               | 0.05                       | 0.40                                                                    |                                                      | 2.5                     | 0.1                     | 4.5                                                                                 | I       |
| 100                  | 0.05                       | 0.38                                                                    |                                                      | 2.6                     | 0.1                     | 4.9                                                                                 | I       |
| AVG.                 | 0.05                       | 0.39                                                                    |                                                      | 2.6                     | 0.1                     | 4.7                                                                                 | I       |
| 107(1) S1            | 0.03                       | 0.05                                                                    |                                                      | 2.5                     | 5.0                     | 11.3                                                                                | I       |
| AVG.                 | 0.03                       | 0.05                                                                    |                                                      | 2.5                     | 5.0                     | 11.3                                                                                | I       |

Moderate, heavy smoke  
Sample deforms

Moderate, heavy smoke

Pad backing burns 12 inches

Black, heavy smoke; acrid odor

TABLE III (Continued)  
TEST METHOD 5902 - VERTICAL

Part 1 - General Tests - Representative Materials

| Material<br>No. | Code | Ignition<br>Time<br>(min.) | Flaming Time<br>(Measured After<br>12 sec. Burner<br>Removal)<br>(min.) | Glow Time<br>(Measured After<br>Flameout)<br>(min.) | Burn<br>Length<br>(in.) | Char<br>Length<br>(in.) | Burn Rate<br>(12 sec. Burner<br>Time Included) |                      | Remarks                            |
|-----------------|------|----------------------------|-------------------------------------------------------------------------|-----------------------------------------------------|-------------------------|-------------------------|------------------------------------------------|----------------------|------------------------------------|
|                 |      |                            |                                                                         |                                                     |                         |                         | 0-12 in.<br>(in./min.)                         | 12 in.<br>(in./min.) |                                    |
| 108(1)          | S1   | 0.03                       | 0.00(2)                                                                 |                                                     | 1.0                     | 2.7                     | 10.0                                           | I                    | Black, dense smoke; acrid odor     |
| Avg.            |      |                            | 0.00                                                                    |                                                     | 1.0                     | 2.7                     | 10.0                                           | I                    |                                    |
| 109(1)          | S1   | 0.03                       | 1.50                                                                    |                                                     | 8.0                     | 8.0                     | X                                              | 0.4                  | Very dense black smoke; acrid odor |
| Avg.            |      |                            | 1.50                                                                    |                                                     | 8.0                     | 8.0                     | X                                              | 0.4                  |                                    |

Note (1): Materials 107, 108 and 109 were only eight inches in length.

Note (2): Material 108 flamed out 0.12 minutes before burner removal.

I Burned less than 12 inches

X Burned full length

TABLE III

## TEST METHOD 5902 - VERTICAL

## Part 2 - Special Tests - New, Used and Cleaned Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Plaming Time<br>(Measured After<br>12 sec. Burner<br>Removal)<br>(min.) | Glow Time<br>(Measured After<br>Flameout)<br>(min.) | Burn<br>Length<br>(in.) | Char<br>Length<br>(in.) | Burn Rate                                                   |                                 | Remarks                                                          |
|----------------------|----------------------------|-------------------------------------------------------------------------|-----------------------------------------------------|-------------------------|-------------------------|-------------------------------------------------------------|---------------------------------|------------------------------------------------------------------|
|                      |                            |                                                                         |                                                     |                         |                         | (12 sec. Burner<br>Time Included)<br>0-12 in.<br>(in./min.) | (12 in.<br>12 in.<br>(in./min.) |                                                                  |
| 13N(1) F1            | 0.05                       | 1.37                                                                    |                                                     | 12.0                    | 12.0                    | X                                                           | 7.9                             | Very light smoke                                                 |
| 13N                  | 0.05                       | 1.28                                                                    |                                                     | 12.0                    | 12.0                    | X                                                           | 8.4                             |                                                                  |
| Avg.                 | 0.05                       | 1.33                                                                    |                                                     | 12.0                    | 12.0                    | X                                                           | 8.2                             |                                                                  |
| 13NC F1              | 0.05                       | 1.45                                                                    |                                                     | 12.0                    | 12.0                    | X                                                           | 7.5                             |                                                                  |
| 13NC                 | 0.05                       | 1.48                                                                    |                                                     | 12.0                    | 12.0                    | X                                                           | 7.4                             |                                                                  |
| Avg.                 | 0.05                       | 1.46                                                                    |                                                     | 12.0                    | 12.0                    | X                                                           | 7.4                             |                                                                  |
| 13U F1               | 0.05                       | 1.20                                                                    |                                                     | 12.0                    | 12.0                    | X                                                           | 8.9                             |                                                                  |
| 13U                  | 0.05                       | 1.30                                                                    |                                                     | 12.0                    | 12.0                    | X                                                           | 8.3                             |                                                                  |
| Avg.                 | 0.05                       | 1.25                                                                    |                                                     | 12.0                    | 12.0                    | X                                                           | 8.6                             |                                                                  |
| 13UC F1              | 0.05                       | 1.07                                                                    |                                                     | 12.0                    | 12.0                    | X                                                           | 9.8                             |                                                                  |
| 13UC                 | 0.05                       | 1.59                                                                    |                                                     | 12.0                    | 12.0                    | X                                                           | 6.9                             |                                                                  |
| Avg.                 | 0.05                       | 1.33                                                                    |                                                     | 12.0                    | 12.0                    | X                                                           | 8.3                             |                                                                  |
| 18N F1               | 0.05                       | 1.48                                                                    |                                                     | 9.7                     | 9.7                     | 6.0                                                         | I                               | Very light smoke, melts, drips to<br>bottom of cabinet and burns |
| 18N                  | 0.05                       | 1.70                                                                    |                                                     | 10.0                    | 10.0                    | 5.4                                                         | I                               |                                                                  |
| Avg.                 | 0.05                       | 1.59                                                                    |                                                     | 9.9                     | 9.9                     | 5.7                                                         | I                               |                                                                  |
| 18NC                 | 0.05                       | 1.05                                                                    |                                                     | 10.5                    | 10.5                    | 8.8                                                         | I                               |                                                                  |
| 18NC                 | 0.05                       | 1.32                                                                    |                                                     | 10.0                    | 10.0                    | 6.8                                                         | I                               |                                                                  |
| Avg.                 | 0.05                       | 1.18                                                                    |                                                     | 10.3                    | 10.3                    | 7.8                                                         | I                               |                                                                  |
| 18UC F1              | 0.05                       | 1.89                                                                    |                                                     | 12.0                    | 12.0                    | X                                                           | 5.9                             |                                                                  |
| 18UC                 | 0.05                       | 1.32                                                                    |                                                     | 12.0                    | 12.0                    | X                                                           | 5.9                             |                                                                  |
| Avg.                 | 0.05                       | 1.61                                                                    |                                                     | 12.0                    | 12.0                    | X                                                           | 5.9                             |                                                                  |
| 19N F1               | 0.05                       | 0.60                                                                    |                                                     | 7.3                     | 7.3                     | 9.7                                                         | I                               | Light smoke, melts, drips to<br>bottom of cabinet and burns      |
| 19N                  | 0.05                       | 0.84                                                                    |                                                     | 7.0                     | 7.0                     | 7.1                                                         | I                               |                                                                  |
| Avg.                 | 0.05                       | 0.72                                                                    |                                                     | 7.2                     | 7.2                     | 8.4                                                         | I                               |                                                                  |

TABLE III (Continued)  
TEST METHOD 5902 - VERTICAL

Part 2 - Special Tests - New, Used and Cleaned Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Flaming Time<br>(Measured After<br>12 sec. Burner<br>Removal)<br>(min.) | Glow Time<br>(Measured After<br>Flameout)<br>(min.) | Burn<br>Length<br>(in.) | Char<br>Length<br>(in.) | Burn Rate<br>(12 sec. Burner<br>Time Included) |                      | Remarks                                        |
|----------------------|----------------------------|-------------------------------------------------------------------------|-----------------------------------------------------|-------------------------|-------------------------|------------------------------------------------|----------------------|------------------------------------------------|
|                      |                            |                                                                         |                                                     |                         |                         | 0-12 in.<br>(in./min.)                         | 12 in.<br>(in./min.) |                                                |
| 19NC F1              | 0.05                       | 0.97                                                                    |                                                     | 7.0                     | 7.0                     | 6.3                                            | I                    |                                                |
| 19NC                 | 0.05                       | 0.84                                                                    |                                                     | 7.1                     | 7.1                     | 7.2                                            | I                    |                                                |
| Avg.                 | 0.05                       | 0.91                                                                    |                                                     | 7.1                     | 7.1                     | 6.7                                            | I                    |                                                |
| 19U F1               | 0.05                       | 0.74                                                                    |                                                     | 12.0                    | 12.0                    | 13.5                                           | I                    |                                                |
| 19U                  | 0.05                       | 0.50                                                                    |                                                     | 8.3                     | 8.3                     | 12.8                                           | I                    |                                                |
| Avg.                 | 0.05                       | 0.62                                                                    |                                                     | 10.2                    | 10.2                    | 13.1                                           | I                    |                                                |
| 19UC F1              | 0.05                       | 0.75                                                                    |                                                     | 8.0                     | 8.0                     | 8.9                                            | I                    |                                                |
| 19UC                 | 0.05                       | 0.42                                                                    |                                                     | 7.8                     | 7.8                     | 13.9                                           | I                    |                                                |
| Avg.                 | 0.05                       | 0.58                                                                    |                                                     | 7.9                     | 7.9                     | 11.4                                           | I                    | Melts, drips to bottom of<br>cabinet and burns |
| 20N F1               | 0.05                       | 0.53                                                                    |                                                     | 5.6                     | 5.6                     | 8.2                                            | I                    |                                                |
| 20N                  | 0.05                       | 0.53                                                                    |                                                     | 5.5                     | 5.3                     | 8.1                                            | I                    |                                                |
| Avg.                 | 0.05                       | 0.53                                                                    |                                                     | 5.6                     | 5.5                     | 8.1                                            | I                    |                                                |
| 20NC F1              | 0.05                       | 0.90                                                                    |                                                     | 6.9                     | 6.9                     | 6.6                                            | I                    |                                                |
| 20NC                 | 0.05                       | 0.50                                                                    |                                                     | 6.1                     | 6.1                     | 9.4                                            | I                    |                                                |
| Avg.                 | 0.05                       | 0.70                                                                    |                                                     | 6.5                     | 6.5                     | 8.5                                            | I                    |                                                |
| 20U F1               | 0.05                       | 0.40                                                                    |                                                     | 6.0                     | 6.0                     | 10.9                                           | I                    |                                                |
| 20U                  | 0.05                       | 0.92                                                                    |                                                     | 6.7                     | 6.7                     | 6.3                                            | I                    |                                                |
| Avg.                 | 0.05                       | 0.66                                                                    |                                                     | 6.4                     | 6.4                     | 8.6                                            | I                    |                                                |
| 20UC F1              | 0.05                       | 0.50                                                                    |                                                     | 6.0                     | 6.0                     | 9.2                                            | I                    |                                                |
| 20UC                 | 0.05                       | 0.43                                                                    |                                                     | 6.2                     | 6.2                     | 10.7                                           | I                    |                                                |
| Avg.                 | 0.05                       | 0.47                                                                    |                                                     | 6.1                     | 6.1                     | 9.9                                            | I                    |                                                |
| 27NC R2              | 0.05                       | 2.42                                                                    |                                                     | 2.6                     | 1.8                     | 1.0                                            | I                    |                                                |
| 27NC                 | 0.05                       | 2.52                                                                    |                                                     | 1.8                     | 1.0                     | 0.7                                            | I                    |                                                |
| Avg.                 | 0.05                       | 2.47                                                                    |                                                     | 2.2                     | 1.4                     | 0.8                                            | I                    |                                                |

TABLE III (Continued)  
TEST METHOD 5902 - VERTICAL

Part 2 - Special Tests - New, Used and Cleaned Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Flaming Time<br>(Measured After<br>12 sec. Burner<br>Removal)<br>(min.) | Glow Time<br>(Measured After<br>Flameout)<br>(min.) | Burn<br>Length<br>(in.) | Char<br>Length<br>(in.) | Burn Rate<br>(12 sec. Burner<br>Time Included) |                      | Remarks        |
|----------------------|----------------------------|-------------------------------------------------------------------------|-----------------------------------------------------|-------------------------|-------------------------|------------------------------------------------|----------------------|----------------|
|                      |                            |                                                                         |                                                     |                         |                         | 0-12 in.<br>(in./min.)                         | 12 in.<br>(in./min.) |                |
| 27U R2               | 0.05                       | 2.94                                                                    | 1.33                                                | 5.0                     | 3.8                     | I                                              | 1.6                  | I              |
| 27U                  | 0.05                       | 6.18                                                                    | 1.28                                                | 12.0                    | 9.5                     | X                                              | 1.9                  |                |
| Avg.                 | 0.05                       | 4.56                                                                    | 1.31                                                | 8.5                     | 6.7                     | I                                              | 1.8                  |                |
| 27UC R2              | 0.05                       | 0.97                                                                    | 1.17                                                | 1.0                     | 0.2                     | I                                              | 0.9                  | I              |
| 27UC                 | 0.05                       | 1.52                                                                    | 1.33                                                | 1.3                     | 0.4                     | I                                              | 0.8                  | I              |
| Avg.                 | 0.05                       | 1.24                                                                    | 1.25                                                | 1.2                     | 0.3                     | I                                              | 0.8                  | I              |
| 99N R2               | 0.07                       | 0.94                                                                    | 1.17                                                | 1.2                     | 0.2                     | I                                              | 1.1                  | I              |
| 99N                  | 0.07                       | 1.08                                                                    | 1.33                                                | 1.1                     | 0.2                     | I                                              | 0.9                  | I              |
| Avg.                 | 0.07                       | 1.01                                                                    | 1.25                                                | 1.2                     | 0.2                     | I                                              | 1.0                  | I              |
| 99NC R2              | 0.05                       | 0.85                                                                    | 1.17                                                | 1.5                     | 0.2                     | I                                              | 1.5                  | I              |
| 99NC                 | 0.05                       | 0.84                                                                    | 1.25                                                | 2.0                     | 0.3                     | I                                              | 2.0                  | I              |
| Avg.                 | 0.05                       | 0.85                                                                    | 1.21                                                | 2.8                     | 0.3                     | I                                              | 1.7                  | I              |
| 99U R2               | 0.05                       | 3.25                                                                    |                                                     | 5.0                     | 7.0                     | I                                              | 1.5                  | I              |
| 99U                  | 0.05                       | 7.33                                                                    |                                                     | 12.0                    | 12.0                    | X                                              | 1.6                  |                |
| Avg.                 | 0.05                       | 5.29                                                                    |                                                     | 8.5                     | 9.5                     | I                                              | 1.6                  |                |
| 99UC R2              | 0.05                       | 2.74                                                                    |                                                     | 4.0                     | 5.0                     | I                                              | 1.5                  | I              |
| 99UC                 | 0.05                       | 3.00                                                                    |                                                     | 3.0                     | 3.2                     | I                                              | 1.0                  | I              |
| Avg.                 | 0.05                       | 2.87                                                                    |                                                     | 3.5                     | 4.1                     | I                                              | 1.2                  | I              |
| 100N R1              | 0.05                       | 0.40                                                                    |                                                     | 2.5                     | 0.1                     | I                                              | 4.5                  | Moderate smoke |
| 100N                 | 0.05                       | 0.38                                                                    |                                                     | 2.6                     | 0.1                     | I                                              | 4.9                  |                |
| Avg.                 | 0.05                       | 0.39                                                                    |                                                     | 2.6                     | 0.1                     | I                                              | 4.7                  |                |
| 100NC R1             | 0.05                       | 0.53                                                                    |                                                     | 2.0                     | 0.1                     | I                                              | 2.9                  | I              |
| 100NC                | 0.05                       | 0.20                                                                    |                                                     | 1.8                     | 0.1                     | I                                              | 5.1                  | I              |
| Avg.                 | 0.05                       | 0.37                                                                    |                                                     | 1.9                     | 0.1                     | I                                              | 4.0                  | I              |

TABLE III (Continued)  
TEST METHOD 5902 - VERTICAL

Part 2 - Special Tests - New, Used and Cleaned Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Flaming Time<br>(Measured After<br>12 sec. Burner<br>Removal)<br>(min.) | Glow Time<br>(Measured After<br>Flameout)<br>--- | Burn<br>Length<br>(in.) | Char<br>Length<br>(in.) | Burn Rate<br>(12 sec. Burner<br>Times Included) |                      | Remarks |
|----------------------|----------------------------|-------------------------------------------------------------------------|--------------------------------------------------|-------------------------|-------------------------|-------------------------------------------------|----------------------|---------|
|                      |                            |                                                                         |                                                  |                         |                         | 0-12 in.<br>(in./min.)                          | 12 in.<br>(in./min.) |         |
| 100U R1              | 0.05                       | 0.17                                                                    |                                                  | 2.0                     | 0.1                     | 6.3                                             | I                    |         |
| 100U                 | 0.05                       | 0.15                                                                    |                                                  | 2.1                     | 0.1                     | 7.0                                             | I                    |         |
| Avg.                 | 0.05                       | 0.16                                                                    |                                                  | 2.1                     | 0.1                     | 6.6                                             | I                    |         |
| 100UC R1             | 0.05                       | 0.33                                                                    |                                                  | 3.5                     | 0.1                     | 7.5                                             | I                    |         |
| 100UC                | 0.15                       | 0.22                                                                    |                                                  | 3.4                     | 0.1                     | 9.2                                             | I                    |         |
| Avg.                 | 0.10                       | 0.27                                                                    |                                                  | 3.5                     | 0.1                     | 8.4                                             | I                    |         |

Note (1): Letters after material no. signify: N - New; NC - New and Cleaned; U - Used; UC - Used and Cleaned

TABLE IV  
TEST METHOD NBS RADIANT PANEL

Part 1 - General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Burn<br>Length<br>(in.) | Burn Rate<br>(Initial<br>3" Length)<br>(in./min.) | Smoke<br>Fsc<br>(mg) | Heat<br>Factor<br>(deg. C.) | Flame<br>Spread<br>Factor<br>(F <sub>g</sub> ) | Flame<br>Spread<br>Index<br>(I <sub>g</sub> ) | Coefficient<br>of<br>Variation<br>(percent) | Remarks                               |
|----------------------|----------------------------|-------------------------|---------------------------------------------------|----------------------|-----------------------------|------------------------------------------------|-----------------------------------------------|---------------------------------------------|---------------------------------------|
| 1 R1                 |                            | 6-9                     |                                                   |                      | 12                          | 4.95                                           | 14                                            |                                             |                                       |
| 1                    |                            | 6-9                     |                                                   | 1.2                  | 29                          | 6.76                                           | 45                                            |                                             |                                       |
| 1                    | 0.22                       | 6-9                     | 1.4                                               |                      | 28                          | 1.93                                           | 12                                            | 64                                          |                                       |
| Avg.                 |                            |                         |                                                   |                      | 23                          | 4.54                                           | 24                                            |                                             |                                       |
| 2 F1                 |                            | 0                       |                                                   | 0.0                  | 0                           | 1.00                                           | 0                                             |                                             | Melts away from pilot before ignition |
| 2                    | 0.16                       | 6-9                     | 4.9                                               |                      | 16                          | 6.13                                           | 22                                            |                                             |                                       |
| Avg.                 |                            |                         |                                                   |                      | 8                           | 3.57                                           | 11                                            | 50                                          |                                       |
| 3 F1                 |                            | 0                       |                                                   | 0.0                  | 0                           | 1.00                                           | 0                                             |                                             | Melts away from pilot before ignition |
| 3                    |                            | 0                       |                                                   | 0.0                  | 0                           | 1.00                                           | 0                                             |                                             |                                       |
| 3                    |                            | 0                       |                                                   | 0.0                  | 0                           | 1.00                                           | 0                                             |                                             |                                       |
| 3                    |                            | 0                       |                                                   | 0.0                  | 0                           | 1.00                                           | 0                                             |                                             |                                       |
| Avg.                 |                            |                         |                                                   | 0.0                  | 0                           | 1.00                                           | 0                                             | 0                                           |                                       |
| 4 F1                 |                            | 0                       |                                                   | 0.0                  | 0                           | 1.00                                           | 0                                             |                                             | Melts away from pilot before ignition |
| 4                    |                            | 0                       |                                                   | 0.0                  | 0                           | 1.00                                           | 0                                             |                                             |                                       |
| 4                    |                            | 0                       |                                                   | 0.0                  | 0                           | 1.00                                           | 0                                             |                                             |                                       |
| 4                    |                            | 0                       |                                                   | 0.0                  | 0                           | 1.00                                           | 0                                             |                                             |                                       |
| Avg.                 |                            |                         |                                                   | 0.0                  | 0                           | 1.00                                           | 0                                             | 0                                           |                                       |
| 5 F2                 |                            | 9-12                    |                                                   |                      | 33                          | 13.08                                          | 98                                            |                                             |                                       |
| 5                    | 12-15                      |                         |                                                   | 2.5                  | 51                          | 24.17                                          | 281                                           | 48                                          |                                       |
| Avg.                 |                            |                         |                                                   | 2.5                  | 42                          | 18.63                                          | 190                                           |                                             |                                       |
| 6 F1                 |                            | 15+                     |                                                   | 0.8                  | 47                          | 19.13                                          | 205                                           |                                             | Melts and drops against screen        |
| 6                    | 15+                        |                         |                                                   | 0.3                  | 64                          | 25.34                                          | 370                                           |                                             |                                       |
| 6                    | 6-9                        |                         |                                                   |                      | 8                           | 10.00                                          | 18                                            | 73                                          |                                       |
| Avg.                 |                            |                         |                                                   | 0.6                  | 40                          | 18.16                                          | 198                                           |                                             |                                       |
| 7 F1                 |                            | 15+                     |                                                   | 0.6                  | 57                          | 33.21                                          | 432                                           |                                             |                                       |
| 7                    | 15+                        |                         |                                                   | 0.8                  | 60                          | 27.17                                          | 372                                           |                                             |                                       |
| Avg.                 |                            |                         |                                                   | 0.7                  | 58                          | 30.19                                          | 402                                           | 7                                           |                                       |

TABLE IV (Continued)  
TEST METHOD NBS RADIANT PANEL

Part 1 - General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Burn<br>Length<br>(in.) | Burn Rate<br>(Initial<br>3" Length)<br>(in./min.) | Smoke<br>Factor<br>(mg) | Heat<br>Factor<br>(deg. C.) | Flame<br>Spread<br>Factor<br>(F <sub>g</sub> ) | Flame<br>Spread<br>Index<br>(I <sub>g</sub> ) | Coefficient<br>of<br>Variation<br>(percent) | Remarks |
|----------------------|----------------------------|-------------------------|---------------------------------------------------|-------------------------|-----------------------------|------------------------------------------------|-----------------------------------------------|---------------------------------------------|---------|
| 8 F1                 |                            | 15+                     |                                                   | 3.9                     | 58                          | 16.97                                          | 224                                           |                                             |         |
| 8                    |                            | 15+                     |                                                   | 3.7                     | 78                          | 16.47                                          | 293                                           |                                             |         |
| Avg.                 |                            |                         |                                                   | 3.8                     | 68                          | 16.72                                          | 258                                           | 13                                          |         |
| 9 F2                 |                            | 0                       |                                                   | 0.4                     | 0                           | 1.00                                           | 0                                             |                                             |         |
| 9                    |                            | 0                       |                                                   | 0.0                     | 0                           | 1.00                                           | 0                                             |                                             |         |
| 9                    |                            | 0                       |                                                   | 0.0                     | 0                           | 1.00                                           | 0                                             |                                             |         |
| Avg.                 |                            |                         |                                                   | 0.1                     | 0                           | 1.00                                           | 0                                             | 0                                           |         |
| 10 S1                |                            | 15+                     |                                                   | 0.0                     | 16                          | 79.72                                          | 291                                           |                                             |         |
| 10                   |                            | 9-12                    |                                                   | 1.4                     | 16                          | 27.41                                          | 100                                           |                                             |         |
| Avg.                 |                            |                         |                                                   | 0.7                     | 16                          | 53.56                                          | 195                                           | 48                                          |         |
| 11 S3                |                            | 3-6                     |                                                   | 0.8                     | 47                          | 2.30                                           | 25                                            |                                             |         |
| 11                   | 0.30                       | 12-15                   | 7.9                                               | 1.2                     | 36                          | 7.19                                           | 59                                            |                                             |         |
| 11                   | 0.56                       | 12-15                   | 30.0                                              |                         | 59                          | 7.47                                           | 100                                           |                                             |         |
| Avg.                 | 0.43                       |                         | 18.9                                              | 1.0                     | 47                          | 5.65                                           | 61                                            | 50                                          |         |
| 12 R1                |                            | 15+                     |                                                   |                         | 152                         | 10.64                                          | 369                                           |                                             |         |
| 12                   |                            | 15+                     |                                                   | 1.1                     | 150                         | 9.06                                           | 310                                           |                                             |         |
| 12                   | 0.11                       | 15+                     | 5.8                                               | 1.1                     | 181                         | 9.77                                           | 403                                           |                                             |         |
| Avg.                 |                            |                         |                                                   | 1.1                     | 161                         | 9.82                                           | 361                                           | 11                                          |         |
| 13 F1                | 0.15                       | 15+                     | 9.1                                               | 1.2                     | 86                          | 13.82                                          | 271                                           |                                             |         |
| 13                   | 0.15                       | 15+                     | 15.0                                              | 0.1                     | 69                          | 13.71                                          | 216                                           |                                             |         |
| 13                   | 0.18                       | 15+                     | 15.8                                              | 0.7                     | 74                          | 13.05                                          | 220                                           |                                             |         |
| 13                   | 0.19                       | 15+                     | 15.0                                              | 0.9                     | 51                          | 12.68                                          | 147                                           |                                             |         |
| Avg.                 | 0.17                       |                         | 13.7                                              | 0.7                     | 70                          | 13.32                                          | 214                                           | 21                                          |         |
| 14 F1                | 0.20                       | 15+                     | 15.8                                              | 0.4                     | 48                          | 13.67                                          | 150                                           |                                             |         |
| 14                   | 0.16                       | 15+                     | 15.8                                              | 0.5                     | 38                          | 13.63                                          | 118                                           |                                             |         |
| 14                   | 0.17                       | 15+                     | 18.8                                              | 0.5                     | 48                          | 14.82                                          | 162                                           |                                             |         |
| 14                   | 0.16                       | 15+                     | 18.8                                              | 0.6                     | 38                          | 15.75                                          | 137                                           |                                             |         |
| Avg.                 | 0.17                       |                         | 17.3                                              | 0.5                     | 43                          | 14.47                                          | 142                                           | 10                                          |         |

TABLE IV (Continued)

## TEST METHOD NBS RADIANT PANEL

## Part 1 - General Tests - Representative Materials

| Material<br>No. | Code | Ignition<br>Time<br>(min.) | Burn<br>Length<br>(in.) | Burn Rate<br>(Initial<br>3" Length)<br>(in./min.) | Smoke<br>Factor<br>(mg) | Heat<br>Factor<br>(deg. C.) | Flame<br>Spread<br>Factor<br>(F <sub>g</sub> ) | Flame<br>Spread<br>Index<br>(F <sub>g</sub> ) | Coefficient<br>of<br>Variation<br>(percent) | Remarks                               |
|-----------------|------|----------------------------|-------------------------|---------------------------------------------------|-------------------------|-----------------------------|------------------------------------------------|-----------------------------------------------|---------------------------------------------|---------------------------------------|
| 15              | F1   | 0.10                       | 15+                     | 19.1                                              | 3.8                     | 24                          | 9.96                                           | 55                                            |                                             | Melts                                 |
| 15              |      | 0.10                       | 0-3                     |                                                   | 3.1                     | 6                           | 1.00                                           | 1.4                                           |                                             | Melts; some burning at pilot          |
| 15              |      | 0.10                       | 12-15                   | 11.5                                              | 2.0                     | 27                          | 9.67                                           | 60                                            |                                             | Melts                                 |
| 15              |      | 0.11                       | 15+                     | 18.8                                              | 2.1                     | 16                          | 13.20                                          | 48                                            |                                             |                                       |
| Avg.            |      | 0.10                       |                         | 16.5                                              | 2.8                     | 18                          | 8.46                                           | 41                                            | 57                                          |                                       |
| 16              | F1   | 0.06                       | 9-12                    | 25.0                                              | 0.4                     | 39                          | 9.96                                           | 89                                            |                                             |                                       |
| 16              |      | 0.08                       | 3-6                     | 17.6                                              | 0.2                     | 22                          | 5.00                                           | 25                                            |                                             |                                       |
| 16              |      | 0.19                       | 0-3                     |                                                   | 0.2                     | 23                          | 1.00                                           | 5.2                                           |                                             | Melts; some burning at pilot          |
| 16              |      | 0.12                       | 0-3                     |                                                   | 0.1                     | 28                          | 1.00                                           | 6.4                                           |                                             |                                       |
| Avg.            |      | 0.11                       |                         | 21.3                                              | 0.2                     | 28                          | 4.24                                           | 31                                            | 109                                         |                                       |
| 17              | F1   | 0.12                       | 15+                     | 12.0                                              | 1.2                     | 46                          | 12.69                                          | 133                                           |                                             |                                       |
| 17              |      | 0.07                       | 15+                     | 7.9                                               | 1.1                     | 38                          | 12.45                                          | 108                                           |                                             |                                       |
| 17              |      | 0.12                       | 15+                     | 9.7                                               | 0.9                     | 44                          | 10.87                                          | 109                                           |                                             |                                       |
| 17              |      | 0.18                       | 15+                     | 11.5                                              | 1.7                     | 36                          | 13.33                                          | 109                                           |                                             |                                       |
| Avg.            |      | 0.12                       |                         | 10.5                                              | 1.2                     | 41                          | 12.34                                          | 114                                           | 9                                           |                                       |
| 18              | F1   | 0.16                       | 15+                     | 11.1                                              | 1.0                     | 44                          | 14.17                                          | 142                                           |                                             | Melts; the drops fall to floor & burn |
| 18              |      | 0.05                       | 15+                     | 7.5                                               | 0.8                     | 29                          | 15.33                                          | 101                                           |                                             |                                       |
| 18              |      | 0.22                       | 15+                     | 12.5                                              | 0.8                     | 25                          | 11.20                                          | 64                                            |                                             |                                       |
| 18              |      | 0.20                       | 15+                     | 20.0                                              | 0.7                     | 14                          | 14.50                                          | 46                                            |                                             |                                       |
| Avg.            |      | 0.16                       |                         | 12.8                                              | 0.9                     | 28                          | 13.80                                          | 88                                            | 42                                          |                                       |
| 19              | F1   | 0.16                       | 15+                     | 2.4                                               | 0.3                     | 20                          | 9.34                                           | 62                                            |                                             |                                       |
| 19              |      | 0.12                       | 9-12                    | 7.9                                               | 0.1                     | 10                          | 7.25                                           | 17                                            |                                             |                                       |
| 19              |      | 0.16                       | 12-15                   | 18.8                                              | 0.1                     | 13                          | 8.2                                            | 24                                            |                                             | Melts; does not burn on floor         |
| 19              |      | 0.20                       | 12-15                   | 8.1                                               | 0.5                     | 9                           | 7.15                                           | 15                                            |                                             | Melts; the drops fall to floor & burn |
| Avg.            |      | 0.16                       |                         | 9.3                                               | 0.3                     | 15                          | 7.99                                           | 29                                            | 64                                          |                                       |
| 20              | F1   | 0.14                       | 0-3                     |                                                   | 0.1                     | 19                          | 1.00                                           | 4.3                                           |                                             | Rapid melting; some burning at pilot  |
| 20              |      | 0.17                       | 0-3                     |                                                   | 0.4                     | 19                          | 1.00                                           | 4.3                                           |                                             |                                       |
| 20              |      | 0.17                       | 0-3                     |                                                   | 0.4                     | 21                          | 1.00                                           | 4.8                                           |                                             |                                       |
| 20              |      | 0.10                       | 0-3                     |                                                   | 0.3                     | 17                          | 1.00                                           | 3.9                                           |                                             |                                       |
| Avg.            |      | 0.14                       |                         |                                                   | 0.3                     | 19                          | 1.00                                           | 4.3                                           | 7                                           |                                       |

TABLE IV(Continued)

## TEST METHOD NBS RADIANT PANEL

## Part 1 - General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Burn<br>Length<br>(in.) | Burn Rate<br>(Initial<br>3" Length)<br>(in./min.) | Smoke<br>Factor<br>(mg) | Heat<br>Factor<br>(deg. C.) | Flame<br>Spread<br>Factor<br>(F <sub>g</sub> ) | Flame<br>Spread<br>Index<br>(I <sub>g</sub> ) | Coefficient<br>of<br>Variation<br>(percent) | Remarks                                                                                                 |
|----------------------|----------------------------|-------------------------|---------------------------------------------------|-------------------------|-----------------------------|------------------------------------------------|-----------------------------------------------|---------------------------------------------|---------------------------------------------------------------------------------------------------------|
| 21 F2                | 0.12                       | 9-12                    | 25.0                                              | 1.1                     | 15                          | 26.01                                          | 89                                            |                                             | Violent flashing                                                                                        |
| 21                   | 0.07                       | 9-12                    | 21.4                                              | 1.3                     | 22                          | 20.57                                          | 103                                           |                                             |                                                                                                         |
| 21                   | 0.09                       | 9-12                    | 17.6                                              | 1.9                     | 11                          | 14.46                                          | 36                                            |                                             |                                                                                                         |
| 21                   | 0.10                       | 12-15                   | 16.7                                              | 1.4                     | 7                           | 20.35                                          | 33                                            |                                             |                                                                                                         |
| Avg.                 | 0.09                       |                         | 20.2                                              | 1.4                     | 14                          | 20.55                                          | 65                                            | 48                                          |                                                                                                         |
| 22 F2                | 0.05                       | 9-12                    | 25.0                                              | 1.2                     | 9                           | 8.96                                           | 18                                            |                                             | Flashes                                                                                                 |
| 22                   | 0.05                       | 6-9                     | 12.0                                              | 0.8                     | 22                          | 8.33                                           | 42                                            |                                             |                                                                                                         |
| 22                   | 0.08                       | 6-9                     | 11.1                                              | 0.3                     | 18                          | 10.53                                          | 43                                            |                                             |                                                                                                         |
| 22                   | 0.07                       | 3-6                     | 12.0                                              | 0.4                     | 19                          | 4.12                                           | 18                                            |                                             |                                                                                                         |
| Avg.                 | 0.06                       |                         | 15.0                                              | 0.7                     | 17                          | 7.99                                           | 30                                            | 40                                          |                                                                                                         |
| 23 F2                | 0.06                       | 15+                     | 16.7                                              | 1.7                     | 66                          | 26.16                                          | 394                                           |                                             |                                                                                                         |
| 23                   | 0.05                       | 15+                     | 17.6                                              | 3.4                     | 38                          | 28.30                                          | 245                                           |                                             |                                                                                                         |
| 23                   | 0.07                       | 15+                     | 16.7                                              | 3.8                     | 49                          | 24.48                                          | 274                                           |                                             |                                                                                                         |
| 23                   | 0.10                       | 15+                     | 17.6                                              | 1.9                     | 39                          | 35.58                                          | 316                                           |                                             |                                                                                                         |
| Avg.                 | 0.07                       |                         | 17.2                                              | 2.7                     | 48                          | 28.63                                          | 307                                           | 18                                          |                                                                                                         |
| 24 F2                | 0.07                       | 6-9                     | 5.9                                               | 1.3                     | 14                          | 6.16                                           | 20                                            |                                             | Flashes the entire length of sample<br>Flashes; continues to glow after flame out<br>Flashes<br>Flashes |
| 24                   | 0.10                       | 9-12                    | 4.4                                               | 3.0                     | 20                          | 18.37                                          | 84                                            |                                             |                                                                                                         |
| 24                   | 0.12                       | 6-9                     | 5.7                                               | 2.0                     | 22                          | 4.21                                           | 21                                            |                                             |                                                                                                         |
| 24                   | 0.10                       | c 2                     | 6.0                                               | 2.1                     | 12                          | 9.94                                           | 27                                            |                                             |                                                                                                         |
| Avg.                 | 0.09                       |                         | 5.5                                               | 2.1                     | 17                          | 9.67                                           | 38                                            | 70                                          |                                                                                                         |
| 25 L1                | 0.05                       | 9-12                    | 2.8                                               | 16.1                    | 65                          | 4.76                                           | 71                                            |                                             | Flashes                                                                                                 |
| 25                   | 0.11                       | 12-15                   | 13.4                                              | 18.3                    | 71                          | 12.91                                          | 209                                           |                                             |                                                                                                         |
| 25                   | 0.14                       | 12-15                   | 2.2                                               | 14.5                    | 68                          | 7.66                                           | 119                                           |                                             |                                                                                                         |
| 25                   | 0.10                       | 12-15                   | 2.3                                               | 12.3                    | 61                          | 10.13                                          | 141                                           |                                             |                                                                                                         |
| Avg.                 | 0.10                       |                         | 5.2                                               | 15.3                    | 66                          | 8.86                                           | 134                                           | 37                                          |                                                                                                         |
| 26 R1                | 0.15                       | 6-12                    | 2.7                                               | 2.6                     | 52                          | 3.72                                           | 44                                            |                                             |                                                                                                         |
| 26                   | 0.12                       | 12-15                   | 2.7                                               | 3.5                     | 59                          | 5.92                                           | 80                                            |                                             |                                                                                                         |
| 26                   | 0.18                       | 15+                     | 3.1                                               | 1.1                     | 78                          | 9.76                                           | 174                                           |                                             |                                                                                                         |
| 26                   | 0.15                       | 15+                     | 2.8                                               | 1.5                     | 60                          | 8.03                                           | 110                                           |                                             |                                                                                                         |
| Avg.                 | 0.15                       |                         | 2.8                                               | 2.2                     | 62                          | 6.86                                           | 102                                           | 47                                          |                                                                                                         |

TABLE IV (Continued)

## TEST METHOD NBS RADIANT PANEL

## Part 1 - General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Burn<br>Length<br>(in.) | Burn Rate<br>(Initial<br>3" Length)<br>(in./min.) | Smoke<br>Factor<br>(mg) | Heat<br>Factor<br>(deg. C.) | Flame<br>Spread<br>Factor<br>(F <sub>2</sub> ) | Flame<br>Spread<br>Index<br>(I <sub>2</sub> ) | Coefficient<br>of<br>Variation<br>(percent) | Remarks                                 |
|----------------------|----------------------------|-------------------------|---------------------------------------------------|-------------------------|-----------------------------|------------------------------------------------|-----------------------------------------------|---------------------------------------------|-----------------------------------------|
| 27 R2                | 0.15                       | 15+                     | 3.1                                               | 3.6                     | 82                          | 10.13                                          | 189                                           |                                             |                                         |
| 27                   | 0.11                       | 15+                     | 3.1                                               | 3.9                     | 83                          | 11.28                                          | 214                                           |                                             |                                         |
| 27                   | 0.18                       | 15+                     | 2.9                                               | 3.3                     | 107                         | 10.38                                          | 253                                           |                                             |                                         |
| 27                   | 0.14                       | 15+                     | 3.2                                               | 1.2                     | 90                          | 13.05                                          | 268                                           |                                             |                                         |
| AVG.                 | 0.15                       |                         | 3.1                                               | 3.0                     | 91                          | 11.21                                          | 231                                           | 14                                          |                                         |
| 28 F2                | 0.14                       | 0-3                     |                                                   | 0.7                     | 9                           | 1.00                                           | 2.1                                           |                                             | Flashes; burning around pilot           |
| 28                   | 0.13                       | 0-3                     |                                                   | 0.7                     | 8                           | 1.00                                           | 1.8                                           |                                             |                                         |
| 28                   | 0.06                       | 3-6                     | 13.6                                              | 0.8                     | 16                          | 4.57                                           | 17                                            |                                             |                                         |
| 28                   | 0.05                       | 0-3                     |                                                   | 0.7                     | 22                          | 1.00                                           | 5.0                                           |                                             |                                         |
| AVG.                 | 0.09                       |                         | 3.4                                               | 0.7                     | 14                          | 1.89                                           | 6.4                                           | 95                                          |                                         |
| 29 L1                | 0.11                       | 3-9                     | 15.8                                              | 3.7                     | 35                          | 4.33                                           | 35                                            |                                             | Flashes; large flame at top of specimen |
| 29                   | 0.09                       | 9-12                    | 9.7                                               | 2.8                     | 28                          | 7.00                                           | 45                                            |                                             |                                         |
| 29                   | 0.12                       | 9-12                    | 15.0                                              | 2.8                     | 46                          | 7.54                                           | 79                                            |                                             |                                         |
| 29                   | 0.12                       | 0-3                     |                                                   | 3.1                     | 50                          | 1.00                                           | 11                                            |                                             |                                         |
| AVG.                 | 0.11                       |                         | 10.1                                              | 3.1                     | 40                          | 4.97                                           | 42                                            | 57                                          |                                         |
| 30 S3                | 0.25                       | 9-12                    | 3.8                                               | 25.4                    | 63                          | 5.22                                           | 75                                            |                                             | Large fl. at top of specimen            |
| 30                   | 0.21                       | 9-12                    | 4.7                                               | 25.1                    | 55                          | 3.24                                           | 41                                            |                                             |                                         |
| 30                   | 0.12                       | 9-12                    | 4.8                                               | 24.2                    | 71                          | 5.41                                           | 88                                            |                                             |                                         |
| 30                   | 0.25                       | 9-12                    | 7.3                                               | 24.6                    | 42                          | 6.79                                           | 65                                            |                                             |                                         |
| AVG.                 | 0.21                       |                         | 5.1                                               | 24.8                    | 58                          | 5.17                                           | 67                                            | 26                                          |                                         |
| 31 S3                | 0.22                       | 9-12                    | 2.9                                               | 19.2                    | 38                          | 2.63                                           | 23                                            |                                             | Flashes throughout test                 |
| 31                   | 0.11                       | 9-12                    | 4.6                                               | 16.8                    | 43                          | 6.29                                           | 61                                            |                                             |                                         |
| 31                   | 0.09                       | 9-12                    | 2.9                                               | 16.6                    | 59                          | 2.89                                           | 39                                            |                                             |                                         |
| 31                   | 0.22                       | 9-12                    | 2.3                                               | 18.1                    | 53                          | 2.96                                           | 36                                            |                                             |                                         |
| AVG.                 | 0.16                       |                         | 3.2                                               | 17.7                    | 48                          | 3.69                                           | 40                                            | 35                                          |                                         |
| 22 S3                | 0.17                       | 9-12                    | 3.8                                               | 21.0                    | 73                          | 6.17                                           | 103                                           |                                             | Flashes                                 |
| 32                   | 0.15                       | 9-12                    | 5.8                                               | 19.2                    | 62                          | 5.15                                           | 73                                            |                                             |                                         |
| 32                   | 0.24                       | 9-12                    | 5.4                                               | 1.3                     | 68                          | 4.63                                           | 72                                            |                                             |                                         |
| 32                   | 0.29                       | 12-15                   | 5.1                                               | 17.4                    | 77                          | 5.57                                           | 98                                            |                                             |                                         |
| AVG.                 | 0.22                       |                         | 5.5                                               | 14.7                    | 70                          | 5.38                                           | 86                                            | 16                                          |                                         |

TABLE IV (Continued)  
TEST METHOD DES RADIANT PANEL

Part 1 - General Tests - Representative Materials

| Material No. | Code | Ignition Time (min.) | Burn Length (in.) | Burn Rate (Initial 3" Length) (in./min.) | Smoke Factor (mg) | Heat Factor (deg. C.) | Flame Spread Factor (F <sub>s</sub> ) | Flame Spread Index (V <sub>s</sub> ) | Coefficient of Variation (percent) | Remarks |
|--------------|------|----------------------|-------------------|------------------------------------------|-------------------|-----------------------|---------------------------------------|--------------------------------------|------------------------------------|---------|
| 33           | S3   | 0.15                 | 9-12              | 7.0                                      | 17.4              | 55                    | 6.1 <sub>2</sub>                      | 78                                   |                                    | Flashes |
| 33           |      | 0.22                 | 9-12              | 7.1                                      | 15.0              | 53                    | 6.45                                  | 76                                   |                                    |         |
| 33           |      | 0.24                 | 9-12              | 7.5                                      | 10.8              | 60                    | 6.20                                  | 85                                   |                                    |         |
| 33           |      | 0.18                 | 9-12              | 7.0                                      | 9.1               | 81                    | 7.83                                  | 145                                  |                                    |         |
| Avg.         |      | 0.20                 |                   | 7.2                                      | 13.1              | 62                    | 6.62                                  | 96                                   | 17                                 |         |
| 34           | S3   | 0.18                 | 9-12              | 3.9                                      | 6.5               | 18                    | 7.79                                  | 32                                   |                                    | Flashes |
| 34           |      | 0.09                 | 6-9               | 4.5                                      | 7.1               | 20                    | 4.52                                  | 21                                   |                                    |         |
| 34           |      | 0.08                 | 9-12              | 3.8                                      | 6.8               | 26                    | 4.78                                  | 28                                   |                                    |         |
| 34           |      | 0.22                 | 9-12              | 6.0                                      | 6.3               | 34                    | 5.76                                  | 45                                   |                                    |         |
| Avg.         |      | 0.14                 |                   | 4.6                                      | 6.7               | 25                    | 5.71                                  | 31                                   | 28                                 |         |
| 35           | S2   | 0.10                 | 6-9               | 4.6                                      | 1.7               | 16                    | 10.02                                 | 37                                   |                                    |         |
| 35           |      | 0.11                 | 6-9               | 6.1                                      | 3.0               | 18                    | 6.23                                  | 27                                   |                                    |         |
| 35           |      | 0.16                 | 6-9               | 7.0                                      | 1.8               | 9                     | 4.28                                  | 8.8                                  |                                    |         |
| 35           |      | 0.19                 | 3-6               | 3.1                                      | 2.1               | 14                    | 1.87                                  | 6.0                                  |                                    |         |
| Avg.         |      | 0.14                 |                   | 5.2                                      | 2.2               | 14                    | 5.60                                  | 19                                   | 65                                 |         |
| 36           | F2   | 0.10                 | 12-15             | 17.6                                     | 4.1               | 28                    | 17.60                                 | 112                                  |                                    |         |
| 36           |      | 0.10                 | 12-15             | 20.0                                     | 5.8               | 31                    | 12.29                                 | 87                                   |                                    |         |
| Avg.         |      | 0.10                 |                   | 18.8                                     | 4.9               | 29                    | 16.95                                 | 100                                  | 13                                 |         |
| 37           | F2   | 0.09                 | 15+               | 33.4                                     | 5.9               | 63                    | 40.35                                 | 580                                  |                                    |         |
| 37           |      | 0.05                 | 15+               | 25.0                                     | 5.9               | 62                    | 43.77                                 | 619                                  |                                    |         |
| Avg.         |      | 0.07                 |                   | 29.2                                     | 5.9               | 63                    | 42.06                                 | 599                                  | 3                                  |         |
| 38           | F2   | 0.09                 | 15+               | 33.4                                     | 4.7               | 46                    | 44.59                                 | 468                                  |                                    |         |
| 38           |      | 0.06                 | 15+               | 25.0                                     | 5.6               | 50                    | 44.17                                 | 504                                  |                                    |         |
| Avg.         |      | 0.08                 |                   | 29.2                                     | 5.2               | 48                    | 44.38                                 | 486                                  | 4                                  |         |
| 39           | I2   | 0.16                 | 9-12              | 4.8                                      | 2.9               | 26                    | 7.44                                  | 44                                   |                                    |         |
| 39           |      | 0.15                 | 9-12              | 6.7                                      | 4.7               | 27                    | 7.78                                  | 48                                   |                                    |         |
| 39           |      | 0.14                 | 9-12              | 5.5                                      | 2.3               | 24                    | 10.57                                 | 58                                   |                                    |         |
| 39           |      | 0.17                 | 9-12              | 6.7                                      | 1.9               | 23                    | 9.16                                  | 48                                   |                                    |         |
| Avg.         |      | 0.16                 |                   | 5.9                                      | 2.9               | 25                    | 8.74                                  | 50                                   | 10                                 |         |

TABLE IV (Continued)  
TEST METHOD NBS RADIANT PANEL

Part 1- General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Burn<br>Length<br>(in.) | Burn Rate<br>(Initial<br>3" Length)<br>(in./min.) | Smoke<br>Factor<br>(mg) | Heat<br>Factor<br>(deg. C.) | Flame<br>Spread<br>Factor<br>(F <sub>g</sub> ) | Flame<br>Spread<br>Index<br>(I <sub>g</sub> ) | Coefficient<br>of<br>Variation<br>(percent) | Remarks                             |
|----------------------|----------------------------|-------------------------|---------------------------------------------------|-------------------------|-----------------------------|------------------------------------------------|-----------------------------------------------|---------------------------------------------|-------------------------------------|
| 40 F2                | 0.05                       | 15+                     | 30.0                                              | 1.3                     | 84                          | 47.39                                          | 908                                           |                                             |                                     |
| 40                   | 0.05                       | 15+                     | 37.5                                              | 1.8                     | 75                          | 45.72                                          | 782                                           |                                             |                                     |
| 40                   | 0.10                       | 15+                     | 60.0                                              | 1.2                     | 39                          | 67.61                                          | 601                                           |                                             |                                     |
| 40                   | 0.10                       | 15+                     | 50.0                                              | 1.4                     | 62                          | 59.22                                          | 837                                           |                                             |                                     |
| Avg.                 | 0.08                       |                         | 44.4                                              | 1.4                     | 65                          | 54.99                                          | 782                                           | 15                                          |                                     |
| 41 R1                | 0.30                       | 12-15                   | 4.1                                               | 7.2                     | 141                         | 6.93                                           | 223                                           |                                             | Melts; drops fall to floor and burn |
| 41                   | 0.70                       | 12-15                   | 5.3                                               | 7.8                     | 152                         | 7.96                                           | 276                                           |                                             |                                     |
| 41                   | 0.75                       | 9-12                    | 6.7                                               | 7.4                     | 134                         | 6.78                                           | 207                                           |                                             |                                     |
| 41                   | 0.30                       | 9-12                    | 2.7                                               | 7.6                     | 123                         | 3.58                                           | 100                                           |                                             |                                     |
| Avg.                 | 0.51                       |                         | 4.7                                               | 7.5                     | 137                         | 6.31                                           | 202                                           | 32                                          |                                     |
| 42 F1                | 0.18                       | 15+                     | 9.1                                               | 2.1                     | 78                          | 11.11                                          | 198                                           |                                             |                                     |
| 42                   | 0.21                       | 15+                     | 8.8                                               | 2.2                     | 61                          | 11.21                                          | 156                                           |                                             |                                     |
| 42                   | 0.15                       | 15+                     | 9.7                                               | 1.8                     | 67                          | 11.39                                          | 174                                           |                                             |                                     |
| 42                   | 0.18                       | 15+                     | 9.4                                               | 1.1                     | 65                          | 11.11                                          | 165                                           |                                             |                                     |
| Avg.                 | 0.18                       |                         | 9.2                                               | 1.8                     | 68                          | 11.21                                          | 173                                           | 9                                           |                                     |
| 43 F1                | 0.14                       | 15+                     | 37.5                                              | 0.7                     | 79                          | 42.52                                          | 766                                           |                                             |                                     |
| 43                   | 0.11                       | 15+                     | 27.3                                              | 0.3                     | 74                          | 39.91                                          | 673                                           |                                             |                                     |
| 43                   | 0.16                       | 15+                     | 50.0                                              | 0.6                     | 63                          | 35.26                                          | 507                                           |                                             |                                     |
| 43                   | 0.15                       | 15+                     | 20.0                                              | 0.4                     | 67                          | 35.11                                          | 445                                           |                                             |                                     |
| Avg.                 | 0.14                       |                         | 33.7                                              | 0.5                     | 71                          | 36.70                                          | 598                                           | 22                                          |                                     |
| 44 F1                | 0.14                       | 15+                     | 11.1                                              | 1.5                     | 66                          | 17.79                                          | 268                                           |                                             | Melts; drops fall to floor and burn |
| 44                   | 0.20                       | 15+                     | 12.0                                              | 2.0                     | 59                          | 12.14                                          | 167                                           |                                             |                                     |
| 44                   | 0.11                       | 15+                     | 10.4                                              | 2.0                     | 58                          | 13.58                                          | 180                                           |                                             |                                     |
| 44                   | 0.17                       | 15+                     | 11.1                                              | 1.5                     | 66                          | 14.54                                          | 219                                           |                                             |                                     |
| Avg.                 | 0.16                       |                         | 11.1                                              | 1.7                     | 62                          | 14.58                                          | 208                                           | 19                                          |                                     |
| 45 F1                | 0.11                       | 15+                     | 16.7                                              | 0.9                     | 79                          | 14.50                                          | 261                                           |                                             |                                     |
| 45                   | 0.50                       | 15+                     | 37.5                                              | 0.6                     | 71                          | 13.30                                          | 223                                           |                                             |                                     |
| 45                   | 0.16                       | 15+                     | 14.3                                              | 0.7                     | 59                          | 13.13                                          | 177                                           |                                             |                                     |
| 45                   | 0.12                       | 15+                     | 11.1                                              | 0.8                     | 88                          | 13.56                                          | 272                                           |                                             |                                     |
| Avg.                 | 0.13                       |                         | 19.9                                              | 0.8                     | 74                          | 13.75                                          | 233                                           | 16                                          |                                     |

TABLE IV (Continued)

## TEST METHOD NBS RADIANT PANEL

## Part 1 - General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Burn<br>Length<br>(in.) | Burn Rate<br>(Initial<br>3" Length)<br>(in./min.) | Smoke<br>Factor<br>(mg) | Heat<br>Factor<br>(deg. C.) | Flame<br>Spread<br>Factor<br>(F <sub>s</sub> ) | Flame<br>Spread<br>Index<br>(I <sub>s</sub> ) | Coefficient<br>of<br>Variation<br>(percent) | Remarks             |
|----------------------|----------------------------|-------------------------|---------------------------------------------------|-------------------------|-----------------------------|------------------------------------------------|-----------------------------------------------|---------------------------------------------|---------------------|
| 46 F2                | 0.18                       | 12-15                   | 6.1                                               | 3.3                     | 27                          | 7.96                                           | 49                                            |                                             | Flashes             |
| 46                   | 0.17                       | 12-15                   | 5.7                                               | 2.9                     | 24                          | 8.83                                           | 48                                            |                                             |                     |
| 46                   | 0.07                       | 12-15                   | 2.7                                               | 3.1                     | 45                          | 8.63                                           | 89                                            |                                             |                     |
| 46                   | 0.07                       | 12-15                   | 3.3                                               | 3.3                     | 39                          | 10.78                                          | 96                                            |                                             |                     |
| Avg.                 | 0.12                       |                         | 4.4                                               | 3.2                     | 34                          | 9.05                                           | 70                                            | 31                                          |                     |
| 47 S1                | 0.09                       | 9-12                    | 33.3                                              | 0.4                     | 15                          | 32.3                                           | 111                                           |                                             |                     |
| 47                   | 0.08                       | 12-15                   | 37.5                                              | 1.6                     | 17                          | 33.7                                           | 131                                           |                                             |                     |
| 47                   | 0.05                       | 15+                     | 27.3                                              | 1.3                     | 37                          | 42.0                                           | 354                                           |                                             |                     |
| 47                   | 0.06                       | 12-15                   | 30.0                                              | 0.9                     | 39                          | 34.2                                           | 303                                           |                                             |                     |
| Avg.                 | 0.07                       |                         | 32.0                                              | 1.1                     | 27                          | 35.5                                           | 225                                           | 47                                          |                     |
| 48 F2                | 0.11                       | 9-12                    | 2.8                                               | 1.2                     | 30                          | 7.58                                           | 52                                            |                                             | Flashes             |
| 48                   | 0.09                       | 6-9                     | 2.6                                               | 1.5                     | 16                          | 6.14                                           | 22                                            |                                             |                     |
| 48                   | 0.07                       | 9-12                    | 2.5                                               | 0.9                     | 36                          | 7.11                                           | 58                                            |                                             |                     |
| 48                   | 0.07                       | 9-12                    | 2.7                                               | 1.3                     | 36                          | 6.80                                           | 56                                            |                                             |                     |
| Avg.                 | 0.09                       |                         | 2.6                                               | 1.2                     | 30                          | 6.91                                           | 47                                            | 31                                          |                     |
| 49 F2                | 0.12                       | 12-15                   | 3.8                                               | 2.8                     | 49                          | 1.33                                           | 166                                           |                                             | Flashes             |
| 49                   | 0.15                       | 15+                     | 33.3                                              | 2.3                     | 45                          | 19.34                                          | 198                                           |                                             |                     |
| 49                   | 0.12                       | 9-12                    | 23.1                                              | 2.1                     | 45                          | 11.15                                          | 114                                           |                                             |                     |
| 49                   | 0.13                       | 9-12                    | 25.0                                              | 2.5                     | 45                          | 8.25                                           | 137                                           |                                             |                     |
| Avg.                 | 0.13                       |                         | 21.3                                              | 2.4                     | 41                          | 13.39                                          | 154                                           | 20                                          |                     |
| 50 F2                | 0.11                       | 12-15                   | 27.3                                              | 1.8                     | 59                          | 30.07                                          | 405                                           |                                             |                     |
| 50                   | 0.09                       | 12-15                   | 23.1                                              | 2.1                     | 46                          | 20.19                                          | 212                                           |                                             |                     |
| 50                   | 0.15                       | 12-15                   | 21.4                                              | 1.7                     | 50                          | 31.29                                          | 357                                           |                                             |                     |
| 50                   | 0.06                       | 9-12                    | 15.0                                              | 1.5                     | 62                          | 22.57                                          | 376                                           |                                             |                     |
| Avg.                 | 0.10                       |                         | 21.7                                              | 1.8                     | 52                          | 26.03                                          | 337                                           | 22                                          |                     |
| 51 F2                | 0.05                       | 0-3                     |                                                   | 1.0                     | 18                          | 1.00                                           | 4.1                                           |                                             | Flashes to 6 inches |
| 51                   | 0.05                       | 0-3                     |                                                   | 2.7                     | 13                          | 1.00                                           | 2.9                                           |                                             |                     |
| 51                   | 0.05                       | 6-9                     | 6.8                                               | 0.7                     | 22                          | 36.37                                          | 182                                           |                                             | Flashes             |
| 51                   | 0.04                       | 6-9                     | 7.5                                               | 0.9                     | 21                          | 10.94                                          | 52                                            |                                             |                     |
| Avg.                 | 0.05                       |                         | 7.2                                               | 1.3                     | 19                          | 12.33                                          | 61                                            | 121                                         |                     |

TABLE IV (Continued)  
TEST METHOD NBS RADIANT PANEL

Part 1 - General Tests - Representative Materials

| Material<br>No. | Code | Ignition<br>Time<br>(min.) | Burn<br>Length<br>(in.) | Burn Rate<br>(Initial<br>3" Length)<br>(in./min.) | Smoke<br>Factor<br>(mg) | Heat<br>Factor<br>(deg. C.) | Flame<br>Spread<br>Factor<br>(F <sub>2</sub> ) | Flame<br>Spread<br>Index<br>(I <sub>2</sub> ) | Coefficient<br>of<br>Variation<br>(percent) | Remarks                  |
|-----------------|------|----------------------------|-------------------------|---------------------------------------------------|-------------------------|-----------------------------|------------------------------------------------|-----------------------------------------------|---------------------------------------------|--------------------------|
| 52              | F2   | 0.05                       | 6-9                     | 5.4                                               | 1.3                     | 23                          | 11.64                                          | 61                                            |                                             | Flashes to 12 inches     |
| 52              |      | 0.05                       | 3-6                     | 5.5                                               | 0.2                     | 18                          | 2.66                                           | 11                                            |                                             |                          |
| 52              |      | 0.08                       | 3-6                     | 4.6                                               | 0.7                     | 20                          | 2.36                                           | 11                                            |                                             | Flashes                  |
| 52              |      | 0.06                       | 6-9                     | 6.0                                               | 0.9                     | 29                          | 8.11                                           | 54                                            |                                             |                          |
| Avg.            |      | 0.06                       |                         | 5.4                                               | 0.8                     | 22                          | 6.19                                           | 34                                            | 68                                          |                          |
| 53              | F2   | 0.07                       | 6-9                     | 3.6                                               | 1.1                     | 23                          | 5.44                                           | 29                                            |                                             | Flashes                  |
| 53              |      | 0.07                       | 0-3                     |                                                   | 1.0                     | 25                          | 1.00                                           | 5.7                                           |                                             |                          |
| 53              |      | 0.08                       | 6-9                     | 4.1                                               | 0.5                     | 18                          | 8.89                                           | 34                                            |                                             |                          |
| 53              |      | 0.06                       | 6-9                     | 4.9                                               | 0.8                     | 36                          | 8.79                                           | 72                                            |                                             |                          |
| Avg.            |      | 0.07                       |                         | 3.2                                               | 0.8                     | 26                          | 6.03                                           | 36                                            | 67                                          |                          |
| 54              | F2   | 0.09                       | 6-9                     | 3.7                                               | 2.2                     | 34                          | 6.65                                           | 52                                            |                                             | Flashes                  |
| 54              |      | 0.09                       | 6-9                     | 3.6                                               | 2.4                     | 28                          | 7.95                                           | 51                                            |                                             |                          |
| 54              |      | 0.09                       | 6-9                     | 4.1                                               | 1.5                     | 28                          | 10.54                                          | 67                                            |                                             |                          |
| 54              |      | 0.09                       | 6-9                     | 3.8                                               | 1.9                     | 42                          | 4.99                                           | 48                                            |                                             |                          |
| Avg.            |      | 0.09                       |                         | 3.8                                               | 2.0                     | 33                          | 7.53                                           | 54                                            | 14                                          |                          |
| 55              | F2   | 0.15                       | 12-15                   | 2.8                                               | 5.9                     | 71                          | 30.38                                          | 492                                           |                                             | Flashes at first of test |
| 55              |      | 0.08                       | 12-15                   | 2.8                                               | 5.8                     | 60                          | 21.99                                          | 301                                           |                                             |                          |
| 55              |      | 0.11                       | 12-15                   | 5.5                                               | 4.5                     | 76                          | 8.5                                            | 106                                           |                                             | Flashes                  |
| 55              |      | 0.14                       | 12-15                   | 3.1                                               | 5.1                     | 76                          | 24.31                                          | 421                                           |                                             |                          |
| Avg.            |      | 0.12                       |                         | 3.6                                               | 5.3                     | 65                          | 21.32                                          | 330                                           | 44                                          |                          |
| 56              | F2   | 0.05                       | 9-12                    | 60.0                                              | 0.9                     | 15                          | 47.45                                          | 162                                           |                                             | Flashes                  |
| 56              |      | 0.05                       | 9-12                    | 75.0                                              | 1.3                     | 12                          | 70.44                                          | 193                                           |                                             |                          |
| 56              |      | 0.05                       | 9-12                    | 100.0                                             | 0.3                     | 13                          | 55.16                                          | 164                                           |                                             |                          |
| 56              |      | 0.04                       | 9-12                    | 60.0                                              | 0.9                     | 22                          | 70.44                                          | 353                                           |                                             |                          |
| Avg.            |      | 0.05                       |                         | 73.6                                              | 0.8                     | 16                          | 60.87                                          | 218                                           | 36                                          |                          |
| 57              | L1   | 0.05                       | 12-15                   | 60.0                                              | 2.1                     | 13                          | 42.11                                          | 125                                           |                                             | Flashes                  |
| 57              |      | 0.05                       | 9-12                    | 42.3                                              | 1.6                     | 8                           | 75.59                                          | 138                                           |                                             |                          |
| 57              |      | 0.05                       | 6-9                     | 75.0                                              | 0.8                     | 7                           | 45.44                                          | 73                                            |                                             |                          |
| 57              |      | 0.04                       | 9-12                    | 50.0                                              | 1.3                     | 23                          | 60.99                                          | 389                                           |                                             |                          |
| Avg.            |      | 0.05                       |                         | 56.8                                              | 1.4                     | 14                          | 56.03                                          | 181                                           | 68                                          |                          |

TABLE IV (Continued)

## TEST METHOD NES RADIANT PANEL

## Part 1 - General Tests - Representative Materials

| Material<br>No. | Code | Ignition<br>Time<br>(min.) | Burn<br>Length<br>(in.) | Burn Rate<br>(Initial<br>3" Length)<br>(in./min.) | Smoke<br>Factor<br>(mg) | Heat<br>Factor<br>(deg. C.) | Flame<br>Spread<br>Factor<br>( $^{\circ}$ F) | Flame<br>Spread<br>Index<br>( $^{\circ}$ F) | Coefficient<br>of<br>Variation<br>(percent) | Remarks                                                                   |
|-----------------|------|----------------------------|-------------------------|---------------------------------------------------|-------------------------|-----------------------------|----------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------------------------------------|
| 58              | L2   | 0.10                       | 6-9                     | 8.1                                               | 1.9                     | 12                          | 6.24                                         | 17                                          |                                             | Flashes                                                                   |
| 58              |      | 0.12                       | 6-9                     | 6.3                                               | 2.4                     | 20                          | 10.38                                        | 47                                          |                                             |                                                                           |
| 58              |      | 0.17                       | 6-9                     | 7.9                                               | 1.2                     | 20                          | 5.08                                         | 23                                          |                                             |                                                                           |
| 58              |      | 0.10                       | 6-9                     | 6.6                                               | 1.8                     | 20                          | 4.96                                         | 23                                          |                                             |                                                                           |
| Avg.            |      | 0.12                       |                         | 5.7                                               | 1.8                     | 18                          | 6.67                                         | 28                                          | 42                                          |                                                                           |
| 59              | L2   | 0.09                       | 6-9                     | 6.5                                               | 1.4                     | 19                          | 6.65                                         | 29                                          |                                             | Flashes                                                                   |
| 59              |      | 0.09                       | 6-9                     | 6.6                                               | 2.1                     | 17                          | 5.65                                         | 22                                          |                                             |                                                                           |
| 59              |      | 0.17                       | 6-9                     | 6.0                                               | 3.0                     | 15                          | 4.34                                         | 15                                          |                                             |                                                                           |
| 59              |      | 0.10                       | 6-9                     | 6.5                                               | 2.1                     | 8                           | 4.19                                         | 7.6                                         |                                             |                                                                           |
| Avg.            |      | 0.11                       |                         | 6.4                                               | 2.2                     | 15                          | 5.21                                         | 18                                          | 44                                          |                                                                           |
| 60              | F2   | 0.07                       | 0-3                     | 30.00                                             | 1.5                     | 39                          | 1.00                                         | 8.9                                         |                                             | Flashes to 7 inches                                                       |
| 60              |      | 0.09                       | 12-15                   | 11.1                                              | 3.1                     | 29                          | 16.27                                        | 108                                         |                                             | Flashes                                                                   |
| 60              |      | 0.09                       | 3-6                     |                                                   | 1.8                     | 23                          | 3.77                                         | 20                                          |                                             |                                                                           |
| 60              |      | 0.07                       | 0-3                     |                                                   | 1.9                     | 37                          | 1.00                                         | 8.4                                         |                                             |                                                                           |
| Avg.            |      | 0.08                       |                         | 10.3                                              | 2.1                     | 32                          | 5.51                                         | 36                                          | 115                                         | Shrinks away from heat when exposed to<br>pilot flame and does not ignite |
| 61              | F2   | 0-3                        | 0-3                     |                                                   | 0.0                     | 18                          | 1.00                                         | 4.1                                         |                                             | Shrinks away from heat when exposed to<br>pilot flame and does not ignite |
| 61              |      | 0-3                        | 0-3                     |                                                   | 0.0                     | 19                          | 1.00                                         | 4.3                                         |                                             |                                                                           |
| 61              |      | 0-3                        | 0-3                     |                                                   | 0.0                     | 19                          | 1.00                                         | 4.3                                         |                                             |                                                                           |
| 61              |      | 0-3                        | 0-3                     |                                                   | 0.0                     | 22                          | 1.00                                         | 5.0                                         |                                             |                                                                           |
| Avg.            |      |                            |                         |                                                   | 0.0                     | 20                          | 1.00                                         | 4.4                                         | 8                                           |                                                                           |
| 62              | F2   | 0-3                        | 0-3                     |                                                   | 0.0                     | 15                          | 1.00                                         | 3.4                                         |                                             | Shrinks away from heat when exposed to<br>pilot flame and does not ignite |
| 62              |      | 0-3                        | 0-3                     |                                                   | 0.0                     | 20                          | 1.00                                         | 4.6                                         |                                             |                                                                           |
| 62              |      | 0-3                        | 0-3                     |                                                   | 0.0                     | 18                          | 1.00                                         | 4.1                                         |                                             |                                                                           |
| 62              |      | 0-3                        | 0-3                     |                                                   | 0.0                     | 19                          | 1.00                                         | 4.3                                         |                                             |                                                                           |
| Avg.            |      |                            |                         |                                                   | 0.0                     | 18                          | 1.00                                         | 4.1                                         | 4                                           |                                                                           |
| 63              | F2   | 0-3                        | 0-3                     |                                                   | 0.0                     | 13                          | 1.00                                         | 3.0                                         |                                             | Shrinks away from heat when exposed to<br>pilot flame and does not ignite |
| 63              |      | 0-3                        | 0-3                     |                                                   | 0.0                     | 13                          | 1.00                                         | 3.0                                         |                                             |                                                                           |
| 63              |      | 0-3                        | 0-3                     |                                                   | 0.0                     | 16                          | 1.00                                         | 3.6                                         |                                             |                                                                           |
| 63              |      | 0-3                        | 0-3                     |                                                   | 0.0                     | 20                          | 1.00                                         | 4.6                                         |                                             |                                                                           |
| Avg.            |      |                            |                         |                                                   | 0.0                     | 16                          | 1.00                                         | 3.6                                         | 6                                           |                                                                           |

TABLE IV (Continued)  
TEST METHOD NBS RADIANT PANEL

Part 1 - General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Burn<br>Length<br>(in.) | Burn Rate<br>(Initial<br>3" Length)<br>(in./min.) | Smoke<br>Factor<br>(mg) | Heat<br>Factor<br>(deg. C.) | Flame<br>Spread<br>Factor<br>(F <sub>g</sub> ) | Flame<br>Spread<br>Index<br>(I <sub>g</sub> ) | Coefficient<br>of<br>Variation<br>(percent) | Remarks                                      |
|----------------------|----------------------------|-------------------------|---------------------------------------------------|-------------------------|-----------------------------|------------------------------------------------|-----------------------------------------------|---------------------------------------------|----------------------------------------------|
| 64 F2                | 0.04                       | 9-12                    | 60.0                                              | 1.7                     | 19                          | 70.44                                          | 305                                           |                                             |                                              |
| 64                   | 0.03                       | 12-15                   | 50.0                                              | 2.3                     | 11                          | 116.11                                         | 291                                           |                                             |                                              |
| 64                   | 0.04                       | 12-15                   | 37.5                                              | 1.4                     | 28                          | 85.08                                          | 543                                           |                                             |                                              |
| 64                   | 0.02                       | 12-15                   | 100.0                                             | 1.9                     | 7                           | 84.33                                          | 135                                           |                                             |                                              |
| AVG.                 | 0.04                       |                         | 61.9                                              | 1.8                     | 16                          | 88.99                                          | 319                                           | 46                                          |                                              |
| 65 F2                | 0.11                       | 0-3                     |                                                   | 1.5                     | 50                          | 1.00                                           | 11                                            |                                             | Burns only at pilot                          |
| 65                   | 0.12                       | 0-3                     |                                                   | 1.5                     | 45                          | 1.00                                           | 10                                            |                                             |                                              |
| 65                   | 0.09                       | 0-3                     |                                                   | 1.5                     | 47                          | 1.00                                           | 11                                            |                                             |                                              |
| 65                   | 0.13                       | 0-3                     |                                                   | 1.5                     | 38                          | 1.00                                           | 8.7                                           |                                             |                                              |
| AVG.                 | 0.10                       |                         |                                                   | 1.5                     | 45                          | 1.00                                           | 10                                            | 10                                          |                                              |
| 66 S1                | 0.06                       | 6-9                     | 21.4                                              | 1.6                     | 22                          | 10.54                                          | 53                                            |                                             |                                              |
| 66                   | 0.06                       | 6-9                     | 13.7                                              | 1.4                     | 17                          | 8.16                                           | 32                                            |                                             |                                              |
| 66                   | 0.04                       | 3-6                     | 12.5                                              | 1.3                     | 13                          | 4.57                                           | 14                                            |                                             | Flashes                                      |
| AVG.                 | 0.05                       |                         | 15.9                                              | 1.4                     | 17                          | 7.76                                           | 33                                            |                                             |                                              |
| 67 F3                | 0.16                       | 15+                     | 10.7                                              | 0.7                     | 74                          | 11.21                                          | 189                                           |                                             |                                              |
| 67                   | 0.20                       | 15+                     | 8.6                                               | 0.2                     | 56                          | 12.15                                          | 155                                           |                                             |                                              |
| 67                   | 0.12                       | 15+                     | 3.4                                               | 0.3                     | 58                          | 53.67                                          | 445                                           |                                             |                                              |
| AVG.                 | 0.16                       |                         | 7.6                                               | 0.4                     | 63                          | 19.01                                          | 263                                           | 41                                          |                                              |
| 68 S1                | 0.04                       | 15+                     | 30.0                                              | 0.1                     | 34                          | 33.22                                          | 258                                           |                                             | Rapid smouldering, no large flame            |
| 68                   | 0.06                       | 15+                     | 33.3                                              | 0.6                     | 33                          | 44.00                                          | 331                                           |                                             |                                              |
| 68                   | 0.05                       | 15+                     | 23.1                                              | 0.4                     | 28                          | 68.16                                          | 435                                           |                                             |                                              |
| 68                   | 0.05                       | 15+                     | 21.4                                              | 0.6                     | 33                          | 55.71                                          | 419                                           |                                             |                                              |
| AVG.                 | 0.05                       |                         | 26.9                                              | 0.4                     | 32                          | 50.27                                          | 361                                           | 20                                          |                                              |
| 69 S2                | 0.20                       | 0-3                     |                                                   | 4.5                     | 35                          | 1.00                                           | 7.9                                           |                                             | Burns at pilot, large amounts of white smoke |
| 69                   | 0.26                       | 0-3                     |                                                   | 5.3                     | 23                          | 1.00                                           | 5.2                                           |                                             |                                              |
| 69                   | 0.41                       | 0-3                     |                                                   | 4.7                     | 23                          | 1.00                                           | 6.6                                           |                                             |                                              |
| 69                   | 0.21                       | 0-3                     |                                                   | 5.5                     | 20                          | 1.00                                           | 4.6                                           |                                             |                                              |
| AVG.                 | 0.27                       |                         |                                                   | 5.0                     | 27                          | 1.00                                           | 6.1                                           | 20                                          |                                              |

TABLE IV (Continued)  
TEST METHOD NES RADIANT PANEL

Part 1 - General Tests - Representative Materials

| Material<br>No. | Code | Ignition<br>Time<br>(min.) | Burn<br>Length<br>(in.) | Burn Rate<br>(Initial<br>3" Length)<br>(in./min.) | Smoke<br>Factor<br>(mg) | Heat<br>Factor<br>(deg. C.) | Flame<br>Spread<br>Factor<br>(P <sub>g</sub> ) | Flame<br>Spread<br>Index<br>(I <sub>g</sub> ) | Coefficient<br>of<br>Variation<br>(percent) | Remarks                                                                                                      |
|-----------------|------|----------------------------|-------------------------|---------------------------------------------------|-------------------------|-----------------------------|------------------------------------------------|-----------------------------------------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| 70              | Z1   | 0.09                       | 6-9                     | 9.1                                               |                         | 12                          | 20.04                                          | 55                                            |                                             |                                                                                                              |
| 70              |      | 0.10                       | 3-6                     | 6.5                                               |                         | 20                          | 2.78                                           | 13                                            |                                             |                                                                                                              |
| 70              |      | 0.09                       | 3-6                     | 7.3                                               |                         | 21                          | 3.00                                           | 14                                            |                                             |                                                                                                              |
| 70              |      | 0.08                       | 6-9                     | 9.1                                               |                         | 7                           | 8.44                                           | 14                                            |                                             |                                                                                                              |
| Avg.            |      | 0.09                       |                         | 8.0                                               |                         | 15                          | 8.57                                           | 24                                            | 75                                          |                                                                                                              |
| 71              | A    | 0.07                       | 0-3                     |                                                   | 0.5                     | 31                          | 1.00                                           | 7.1                                           |                                             | Cover melts away - insulating material burns at pilot. Lead sheet in material melts after approx. 13 minutes |
| 71              |      | 0.05                       | 0-3                     |                                                   | 0.8                     | 28                          | 1.00                                           | 6.4                                           |                                             |                                                                                                              |
| 71              |      | 0.08                       | 0-3                     |                                                   | 0.4                     | 45                          | 1.00                                           | 10                                            |                                             |                                                                                                              |
| Avg.            |      | 0.07                       |                         |                                                   | 0.6                     | 35                          | 1.00                                           | 7.9                                           | 19                                          |                                                                                                              |
| 72              | A    | 0.05                       | 9-12                    | 2.6                                               | 0.8                     | 12                          | 7.85                                           | 21                                            |                                             | Only vinyl burns, aluminum does not melt, insulation material on back does not burn                          |
| 72              |      | 0.05                       | 0-3                     |                                                   | 0.9                     | 33                          | 1.00                                           | 7.5                                           |                                             |                                                                                                              |
| Avg.            |      | 0.05                       |                         | 1.3                                               | 0.9                     | 23                          | 4.41                                           | 14.5                                          | 31                                          |                                                                                                              |
| 73              | A    | 0.05                       | 12-15                   | 6.0                                               | 2.1                     | 51                          | 26.25                                          | 305                                           |                                             | Flashes                                                                                                      |
| 73              |      | 0.07                       | 15+                     | 12.0                                              | 7.8                     | 66                          | 16.94                                          | 255                                           |                                             |                                                                                                              |
| 73              |      | 0.05                       | 9-12                    | 6.9                                               | 5.3                     | 21                          | 19.74                                          | 96                                            |                                             |                                                                                                              |
| 73              |      | 0.06                       | 15+                     | 6.4                                               | 3.4                     | 31                          | 15.40                                          | 109                                           |                                             |                                                                                                              |
| Avg.            |      | 0.05                       |                         | 7.8                                               | 4.6                     | 42                          | 19.58                                          | 191                                           | 20                                          |                                                                                                              |
| 74              | A    | 0.31                       | 12-15                   | 8.3                                               | 2.7                     | 28                          | 5.99                                           | 38                                            |                                             | Flashes                                                                                                      |
| 74              |      | 0.15                       | 9-12                    | 5.7                                               | 2.7                     | 15                          | 7.80                                           | 27                                            |                                             |                                                                                                              |
| Avg.            |      | 0.23                       |                         | 7.0                                               | 2.7                     | 22                          | 6.89                                           | 33                                            | 18                                          |                                                                                                              |
| 75              | A    |                            | 6-9                     |                                                   | 0.7                     | 11                          | 5.05                                           | 13                                            |                                             | Only vinyl burns, aluminum does not melt                                                                     |
| 75              |      |                            | 9-12                    |                                                   | 2.8                     | 10                          | 16.60                                          | 38                                            |                                             |                                                                                                              |
| Avg.            |      |                            |                         |                                                   | 1.8                     | 11                          | 10.83                                          | 25                                            | 49                                          |                                                                                                              |
| 76              | A    | 0.20                       | 9-12                    | 3.6                                               | 32.4                    | 67                          | 3.85                                           | 59                                            |                                             |                                                                                                              |
| 76              |      | 0.17                       | 12-15                   | 3.1                                               | 38.6                    | 64                          | 4.27                                           | 62                                            |                                             |                                                                                                              |
| 76              |      | 0.14                       | 12-15                   | 3.8                                               | 34.2                    | 71                          | 4.37                                           | 71                                            |                                             |                                                                                                              |
| 76              |      | 0.14                       | 12-15                   | 3.9                                               | 33.1                    | 69                          | 5.03                                           | 69                                            |                                             |                                                                                                              |
| Avg.            |      | 0.16                       |                         | 3.6                                               | 34.6                    | 68                          | 4.38                                           | 68                                            | 31                                          |                                                                                                              |

TABLE IV (Continued)

## TEST METHOD NBS RADIANT PANEL

## Part 1 - General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Burn<br>Length<br>(in.) | Burn Rate<br>(Initial<br>3" Length)<br>(in./min.) | Smoke<br>Factor<br>(mg) | Heat<br>Factor<br>(deg. C.) | Flame<br>Spread<br>Factor<br>(F <sub>g</sub> ) | Flame<br>Spread<br>Index<br>(I <sub>g</sub> ) | Coefficient<br>of<br>Variation<br>(percent) | Remarks                                                  |
|----------------------|----------------------------|-------------------------|---------------------------------------------------|-------------------------|-----------------------------|------------------------------------------------|-----------------------------------------------|---------------------------------------------|----------------------------------------------------------|
| 77 S3                | 0.19                       | 15+                     | 3.8                                               | 3.3                     | 198                         | 8.39                                           | 379                                           |                                             |                                                          |
| 77                   | 0.20                       | 15+                     | 4.0                                               | 4.0                     | 190                         | 8.01                                           | 347                                           |                                             |                                                          |
| Avr.                 | 0.20                       |                         | 3.9                                               | 3.7                     | 194                         | 8.20                                           | 363                                           | 14                                          | Melts, drops fall to floor and cause large fire on floor |
| 78 A                 | 0.57                       | 15+                     | 6.8                                               | 16.7                    | 94                          | 6.55                                           | 140                                           |                                             |                                                          |
| 78                   | 0.37                       | 15+                     | 17.6                                              | 18.2                    | 89                          | 15.38                                          | 312                                           |                                             |                                                          |
| 78                   | 0.21                       | 15+                     | 4.2                                               | 17.1                    | 96                          | 7.16                                           | 157                                           |                                             |                                                          |
| Avr.                 | 0.38                       |                         | 9.5                                               | 17.3                    | 93                          | 9.70                                           | 203                                           | 38                                          |                                                          |
| 79 A                 |                            | 12-15                   |                                                   | 6.4                     | 42                          | 4.49                                           | 43                                            |                                             |                                                          |
| 79                   |                            | 12-15                   |                                                   | 4.2                     | 29                          | 4.67                                           | 31                                            |                                             |                                                          |
| 79                   |                            | 9-12                    |                                                   | 7.1                     | 49                          | 3.57                                           | 40                                            |                                             |                                                          |
| 79                   |                            | 12-15                   |                                                   | 6.7                     | 47                          | 4.72                                           | 51                                            |                                             |                                                          |
| Avr.                 |                            |                         |                                                   | 6.1                     | 42                          | 4.36                                           | 41                                            | 17                                          | Continues to glow for approx. 30 mins. after test        |
| 80 A                 | 0.30                       | 6-9                     | 4.7                                               | 7.2                     | 49                          | 4.62                                           | 52                                            |                                             |                                                          |
| 80                   | 0.33                       | 9-12                    | 5.0                                               | 3.8                     | 59                          | 9.37                                           | 126                                           |                                             |                                                          |
| 80                   | 0.36                       | 6-9                     | 4.5                                               | 3.3                     | 69                          | 4.24                                           | 67                                            |                                             |                                                          |
| 80                   | 0.40                       | 9-12                    | 6.5                                               | 2.4                     | 58                          | 6.01                                           | 80                                            |                                             |                                                          |
| Avr.                 | 0.35                       |                         | 5.2                                               | 4.2                     | 59                          | 6.06                                           | 81                                            | 34                                          |                                                          |
| 81 A                 | 0.35                       | 9-12                    | 3.7                                               | 6.0                     | 54                          | 5.32                                           | 66                                            |                                             |                                                          |
| 81                   | 0.51                       | 9-12                    | 4.4                                               | 3.0                     | 56                          | 5.17                                           | 66                                            |                                             |                                                          |
| 81                   | 0.58                       | 9-12                    | 5.2                                               | 2.8                     | 70                          | 5.60                                           | 89                                            |                                             |                                                          |
| 81                   | 0.37                       | 9-12                    | 4.4                                               | 3.1                     | 73                          | 4.99                                           | 83                                            |                                             |                                                          |
| Avr.                 | 0.45                       |                         | 4.4                                               | 3.7                     | 63                          | 5.27                                           | 76                                            | 14                                          |                                                          |
| 82 A                 | 0.18                       | 9-12                    | 1.6                                               | 4.7                     | 55                          | 4.21                                           | 53                                            |                                             |                                                          |
| 82                   | 0.15                       | 6-9                     | 2.2                                               | 7.5                     | 54                          | 2.95                                           | 36                                            |                                             |                                                          |
| 82                   | 0.14                       | 6-9                     | 2.0                                               | 3.9                     | 54                          | 5.62                                           | 79                                            |                                             |                                                          |
| 82                   | 0.14                       | 9-12                    | 2.9                                               | 5.3                     | 63                          | 3.70                                           | 53                                            |                                             |                                                          |
| Avr.                 | 0.15                       |                         | 2.2                                               | 5.4                     | 59                          | 4.12                                           | 55                                            | 19                                          | Large flame at top of specimen                           |

Continues to smoulder after flame out

TABLE IV (Continued)  
TEST METHOD HBS RADIANT PANEL

Part 1 - General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Burn<br>Length<br>(in.) | Burn Rate<br>(Initial<br>3" Length)<br>(in./min.) | Soot<br>Factor<br>(mg) | Heat<br>Factor<br>(deg. C.) | Flame<br>Spread<br>Factor<br>( $\frac{F}{S}$ ) | Flame<br>Spread<br>Index<br>( $\frac{I_s}{I_g}$ ) | Coefficient<br>of<br>Variation<br>(percent) | Remarks                                |
|----------------------|----------------------------|-------------------------|---------------------------------------------------|------------------------|-----------------------------|------------------------------------------------|---------------------------------------------------|---------------------------------------------|----------------------------------------|
| 82 X                 | 0.08                       | 6-9                     | 2.3                                               |                        | 38                          | 10.81                                          | 94                                                |                                             | Grasscloth cover only                  |
| 82                   | 0.33                       | 9-12                    | 10.4                                              |                        | 22                          | 7.46                                           | 37                                                |                                             | Polyester glass fabric only            |
| 82                   | 0.08                       | 15+                     | 16.6                                              |                        | 44                          | 31.97                                          | 321                                               |                                             | 1-inch Paper Honeycomb only            |
| 82                   | 0.14                       | 6-9                     | 2.8                                               |                        | 41                          | 12.93                                          | 121                                               |                                             | Grasscloth & Polyester glass fabric    |
| 83 A                 | 0.15                       | 9-12                    | 1.0                                               | 4.6                    | 41                          | 3.04                                           | 28                                                |                                             | Outer covering blisters and burns      |
| 83                   | 0.20                       | 9-12                    | 1.0                                               | 6.4                    | 40                          | 3.53                                           | 32                                                |                                             | before other material, slight flashing |
| 83                   | 0.09                       | 9-12                    | 1.0                                               | 5.7                    | 58                          | 4.16                                           | 55                                                |                                             |                                        |
| 83                   | 0.12                       | 9-12                    | 1.0                                               | 4.1                    | 43                          | 3.31                                           | 33                                                |                                             |                                        |
| Avg.                 | 0.14                       |                         | 1.0                                               | 5.2                    | 46                          | 3.51                                           | 37                                                | 17                                          |                                        |
| 84 A                 | 0.12                       | 9-12                    | 13.1                                              | 5.3                    | 30                          | 5.45                                           | 37                                                |                                             |                                        |
| 84                   | 0.14                       | 9-12                    | 3.6                                               | 4.9                    | 53                          | 4.72                                           | 57                                                |                                             |                                        |
| 84                   | 0.08                       | 9-12                    | 3.4                                               | 4.2                    | 46                          | 4.93                                           | 52                                                |                                             |                                        |
| 84                   | 0.17                       | 9-12                    | 4.0                                               | 2.3                    | 37                          | 11.16                                          | 94                                                |                                             | Flashes                                |
| Avg.                 | 0.13                       |                         | 5.9                                               | 4.2                    | 42                          | 6.57                                           | 60                                                | 35                                          |                                        |
| 84 X                 | 0.08                       | 9-12                    | 8.6                                               |                        | 10                          | 12.25                                          | 28                                                |                                             | Cover material only                    |
| 84                   | 0.08                       | 15+                     | 27.3                                              |                        | 49                          | 32.37                                          | 362                                               |                                             | 1/2-inch Paper Honeycomb only          |
| 85 L3                | 0.57                       | 6-9                     | 15.0                                              | 1.1                    | 14                          | 9.03                                           | 29                                                |                                             | Flashes                                |
| 85                   | 0.51                       | 6-9                     | 11.1                                              | 0.8                    | 12                          | 4.72                                           | 13                                                |                                             |                                        |
| 85                   | 0.53                       | 6-9                     | 20.0                                              | 2.9                    | 7                           | 4.86                                           | 7.8                                               |                                             |                                        |
| 85                   | 0.45                       | 6-9                     | 9.4                                               | 0.9                    | 17                          | 4.85                                           | 19                                                |                                             |                                        |
| Avg.                 | 0.52                       |                         | 13.9                                              | 1.2                    | 13                          | 5.87                                           | 17                                                | 46                                          |                                        |
| 86 L3                | 0.41                       | 9-12                    | 6.3                                               | 0.7                    | 12                          | 4.96                                           | 14                                                |                                             | Flashes                                |
| 86                   | 0.37                       | 9-12                    | 4.9                                               | 1.3                    | 10                          | 5.72                                           | 13                                                |                                             |                                        |
| 86                   | 0.53                       | 9-12                    | 8.3                                               | 1.6                    | 16                          | 6.43                                           | 24                                                |                                             |                                        |
| 86                   | 0.43                       | 6-9                     | 8.8                                               | 0.9                    | 16                          | 3.78                                           | 14                                                |                                             |                                        |
| Avg.                 | 0.44                       |                         | 7.1                                               | 1.1                    | 14                          | 5.22                                           | 16                                                | 27                                          |                                        |

TABLE IV (Continued)  
TEST METHOD NBS RADIANT PANEL

Part 1 - General Tests - Representative Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Burn<br>Length<br>(in.) | Burn Rate<br>(Initial<br>3" Length)<br>(in./min.) | Smoke<br>Factor<br>(mg) | Heat<br>Factor<br>(deg. C.) | Flame<br>Spread<br>Factor<br>( $\frac{F_g}{F_g}$ ) | Flame<br>Spread<br>Index<br>( $\frac{I_g}{I_g}$ ) | Coefficient<br>of<br>Variation<br>(percent) | Remarks                                                          |
|----------------------|----------------------------|-------------------------|---------------------------------------------------|-------------------------|-----------------------------|----------------------------------------------------|---------------------------------------------------|---------------------------------------------|------------------------------------------------------------------|
| 87 L3                | 0.60                       | 6-9                     | 12.5                                              | 1.5                     | 17                          | 5.13                                               | 20                                                |                                             | Flashes; material flakes off and<br>falls to floor still burning |
| 87                   | 0.49                       | 9-12                    | 12.5                                              | 1.3                     | 13                          | 6.72                                               | 20                                                |                                             |                                                                  |
| 87                   | 0.42                       | 6-9                     | 15.8                                              | 0.5                     | 7                           | 4.13                                               | 6.6                                               |                                             |                                                                  |
| 87                   | 0.35                       | 6-9                     | 8.8                                               | 0.8                     | 17                          | 4.02                                               | 16                                                |                                             |                                                                  |
| AVG.                 | 0.47                       |                         | 12.4                                              | 1.0                     | 14                          | 5.00                                               | 16                                                | 34                                          |                                                                  |
| 88 L3                |                            | 0-3                     |                                                   | 0.2                     | 16                          | 1.00                                               | 3.6                                               |                                             | No flame; Mylar melts and pulls<br>away from aluminum            |
| 88                   |                            | 0-3                     |                                                   | 0.1                     | 17                          | 1.00                                               | 3.9                                               |                                             |                                                                  |
| 88                   |                            | 0-3                     |                                                   | 0.1                     | 13                          | 1.00                                               | 3.0                                               |                                             |                                                                  |
| 88                   |                            | 0-3                     |                                                   | 0.1                     | 14                          | 1.00                                               | 3.2                                               |                                             |                                                                  |
| AVG.                 |                            |                         |                                                   | 0.1                     | 15                          | 1.00                                               | 3.4                                               | 9                                           |                                                                  |
| 89 P3                | 0.18                       | 15+                     | 12.0                                              | 1.2                     | 40                          | 12.06                                              | 110                                               |                                             |                                                                  |
| 89                   | 0.16                       | 15+                     | 10.7                                              | 0.7                     | 66                          | 10.60                                              | 160                                               |                                             |                                                                  |
| 89                   | 0.11                       | 15+                     | 8.1                                               | 0.7                     | 36                          | 11.94                                              | 98                                                |                                             |                                                                  |
| 89                   | 0.15                       | 15+                     | 11.5                                              | 0.8                     | 57                          | 18.59                                              | 242                                               |                                             |                                                                  |
| AVG.                 | 0.15                       |                         | 10.6                                              | 0.9                     | 50                          | 13.30                                              | 152                                               | 37                                          |                                                                  |
| 90 S1                | 0.03                       | 15+                     | 9.1                                               | 21.3                    | 136                         | 48.38                                              | 1500                                              |                                             |                                                                  |
| 91 S1                | 0.02                       | 15+                     | 23.1                                              |                         | 209                         | 62.04                                              | 2956                                              |                                             |                                                                  |
| 95 S1                | 0.12                       | 9-12                    | 11.5                                              | 0.4                     | 15                          | 8.79                                               | 30                                                |                                             |                                                                  |
| 96 S1                | 0.35                       | 6-9                     | 5.3                                               |                         | 24                          | 8.16                                               | 45                                                |                                             |                                                                  |
| 96                   | 0.65                       | 9-12                    | 4.0                                               |                         | 25                          | 63.34                                              | 361                                               |                                             |                                                                  |
| 96                   | 0.05                       | 9-12                    | 5.7                                               |                         | 25                          | 17.36                                              | 99                                                |                                             |                                                                  |
| 96                   | 0.05                       | 9-12                    | 5.3                                               |                         | 22                          | 6.77                                               | 34                                                |                                             |                                                                  |
| AVG.                 | 0.05                       |                         | 5.0                                               |                         | 24                          | 23.91                                              | 135                                               | 99                                          |                                                                  |

TABLE IV (Continued)

## TEST METHOD NBS RADIANT PANEL

## Part I - General Tests - Representative Materials

| Material<br>No. | Code | Ignition<br>Time<br>(min.) | Burn<br>Length<br>(in.) | Burn Rate<br>(Initial<br>3" Length)<br>(in./min.) | Smoke<br>Factor<br>(mg) | Heat<br>Factor<br>(deg. C.) | Flame<br>Spread<br>Factor<br>( $F_g$ ) | Flame<br>Spread<br>Index<br>( $I_g$ ) | Coefficient<br>of<br>Variation<br>(percent) | Remarks                                    |
|-----------------|------|----------------------------|-------------------------|---------------------------------------------------|-------------------------|-----------------------------|----------------------------------------|---------------------------------------|---------------------------------------------|--------------------------------------------|
| 97              | S1   | 0.05                       | 9-12                    | 13.1                                              |                         | 21                          | 42.24                                  | 202                                   |                                             |                                            |
| 97              |      | 0.05                       | 6-9                     | 12.0                                              |                         | 23                          | 8.49                                   | 45                                    |                                             |                                            |
| 97              |      | 0.05                       | 6-9                     | 12.5                                              |                         | 17                          | 12.77                                  | 50                                    |                                             |                                            |
| 97              |      | 0.05                       | 6-9                     | 10.0                                              |                         | 27                          | 9.11                                   | 56                                    |                                             |                                            |
| Avg.            |      | 0.05                       |                         | 11.9                                              |                         | 22                          | 18.15                                  | 88                                    | 75                                          |                                            |
| 98              | S1   | 0.05                       | 6-9                     | 11.1                                              |                         | 32                          | 20.78                                  | 152                                   |                                             | Flashes                                    |
| 98              |      | 0.06                       | 9-12                    | 8.1                                               |                         | 25                          | 22.76                                  | 130                                   |                                             |                                            |
| 98              |      | 0.05                       | 6-9                     | 7.7                                               |                         | 25                          | 8.53                                   | 49                                    |                                             |                                            |
| 98              |      | 0.05                       | 9-12                    | 11.6                                              |                         | 39                          | 12.27                                  | 109                                   |                                             |                                            |
| Avg.            |      | 0.05                       |                         | 9.6                                               |                         | 30                          | 16.09                                  | 110                                   | 35                                          |                                            |
| 106             | S1   |                            | 15+                     |                                                   | 1.0                     | 48                          | 78.91                                  | 864                                   |                                             | Polyether Foam only (1-inch thick)         |
| 106             | X    | 0.                         | 15+                     | 9.7                                               |                         | 117                         | 17.77                                  | 474                                   |                                             | Polyether Foam covered with #17 upholstery |
| 106             | X    | 0.10                       | 15+                     | 12.0                                              | 0.5                     | 174                         | 18.30                                  | 726                                   |                                             | Polyether Foam covered with #13 upholstery |
| 107             | S1   | 0.09                       | 0-3                     |                                                   | 0.6                     | 22                          | 1.00                                   | 5.0                                   |                                             |                                            |
| 108             | S1   | 0.11                       | 0-3                     |                                                   | 0.6                     | 12                          | 1.00                                   | 2.7                                   |                                             |                                            |
| 109             | S1   | 0.07                       | 9-12                    | 15.8                                              | 3.3                     | 22                          | 9.12                                   | 46                                    |                                             |                                            |

X Experimental

TABLE IV (Continued)

## TEST METHOD NBS RADIANT PANEL

Part 2 - Special Tests - New, Used and Cleaned Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Burn<br>Length<br>(in.) | Burn Rate<br>(Initial<br>3" Length)<br>(in./min.) | Smoke<br>Factor<br>(mg.) | Heat<br>Factor<br>(deg. C.) | Flame<br>Spread<br>Factor<br>(F <sub>g</sub> ) | Flame<br>Spread<br>Index<br>(I <sub>g</sub> ) | Coefficient<br>of<br>Variation<br>(percent) | Remarks                                             |
|----------------------|----------------------------|-------------------------|---------------------------------------------------|--------------------------|-----------------------------|------------------------------------------------|-----------------------------------------------|---------------------------------------------|-----------------------------------------------------|
| 13N F1               | 0.15                       | 5+                      | 11.5                                              | 0.8                      | 92                          | 14.13                                          | 296                                           | 3                                           |                                                     |
| 13NC                 | 0.15                       | 15+                     | 17.6                                              |                          | 103                         | 14.48                                          | 340                                           |                                             |                                                     |
| 13U                  | 0.19                       | 15+                     | 16.6                                              | 0.7                      | 116                         | 21.86                                          | 578                                           |                                             |                                                     |
| 13U                  | 0.18                       | 15+                     | 16.6                                              | 0.4                      | 121                         | 19.80                                          | 566                                           |                                             |                                                     |
| AVG.                 | 0.19                       |                         | 16.6                                              | 0.5                      | 118                         | 20.83                                          | 562                                           |                                             |                                                     |
| 13UC F1              | 0.17                       | 15+                     | 14.3                                              | 0.8                      | 130                         | 21.16                                          | 627                                           | 5                                           |                                                     |
| 13UC                 | 0.17                       | 15+                     | 15.0                                              | 0.4                      | 116                         | 21.11                                          | 558                                           |                                             |                                                     |
| AVG.                 | 0.17                       |                         | 14.6                                              | 0.6                      | 123                         | 21.14                                          | 592                                           |                                             |                                                     |
| 18N F1               | 0.23                       | 15+                     | 25.0                                              |                          | 51                          | 17.84                                          | 207                                           |                                             | Melts; the drops fall to floor & burn               |
| 18NC                 | 0.20                       | 15+                     | 17.6                                              | 0.4                      | 42                          | 14.64                                          | 140                                           |                                             | Melts; the drops fall to floor & burn               |
| 18UC                 | 0.24                       | 15+                     | 15.8                                              | 0.3                      | 59                          | 14.47                                          | 197                                           | 17                                          |                                                     |
| AVG.                 | 0.22                       |                         | 16.7                                              | 0.4                      | 50                          | 14.55                                          | 167                                           |                                             |                                                     |
| 18U F1               | 0.17                       | 15+                     | 20.0                                              | 0.7                      | 47                          | 14.74                                          | 158                                           |                                             |                                                     |
| 18U                  | 0.18                       | 15+                     | 17.6                                              | 0.8                      | 45                          | 17.06                                          | 175                                           |                                             |                                                     |
| AVG.                 | 0.18                       |                         | 18.8                                              | 0.8                      | 46                          | 15.90                                          | 166                                           |                                             |                                                     |
| 18UC F1              | 0.15                       | 15+                     | 21.4                                              | 1.4                      | 60                          | 14.94                                          | 204                                           | 17                                          |                                                     |
| 18UC                 | 0.15                       | 15+                     | 14.3                                              | 0.9                      | 43                          | 14.64                                          | 144                                           |                                             |                                                     |
| AVG.                 | 0.15                       |                         | 17.9                                              | 1.2                      | 51                          | 14.79                                          | 174                                           |                                             |                                                     |
| 19N F1               |                            | 9-12                    |                                                   |                          | 16                          | 10.46                                          | 38                                            |                                             | Melts; the drops fall to floor & burn               |
| 19NC                 |                            | 12-15                   |                                                   |                          | 19                          | 9.19                                           | 40                                            |                                             | Melts; the drops fall to floor & burn               |
| 19U                  |                            | 0-3                     |                                                   |                          | 12                          | 1.00                                           | 2.7                                           |                                             | Melts; the drops fall to floor, no burning on floor |
| 19U                  |                            | 0-3                     |                                                   |                          | 12                          | 1.00                                           | 2.7                                           |                                             |                                                     |
| AVG.                 |                            |                         |                                                   |                          | 12                          | 1.00                                           | 2.7                                           |                                             |                                                     |
| 19UC F1              |                            | 0-3                     |                                                   |                          | 11                          | 1.00                                           | 2.5                                           | 14                                          | Melts; no burning on floor                          |
| 19UC                 |                            | 0-3                     |                                                   |                          | 14                          | 1.00                                           | 3.2                                           |                                             |                                                     |
| AVG.                 |                            |                         |                                                   |                          | 12                          | 1.00                                           | 2.8                                           |                                             |                                                     |
|                      |                            |                         |                                                   |                          |                             |                                                |                                               |                                             |                                                     |
|                      |                            |                         |                                                   |                          |                             |                                                |                                               |                                             |                                                     |

TABLE IV (Continued)

## TEST METHOD NBS RADIANT PANEL

## Part 2 - Special Tests - New, Used and Cleaned Materials

| Material<br>No. Code | Ignition<br>Time<br>(min.) | Burn<br>Length<br>(in.) | Burn Rate<br>(Initial<br>3" Length)<br>(in./min.) | Smoke<br>Factor<br>(mg) | Heat<br>Factor<br>(deg. C.) | Flame<br>Spread<br>Factor<br>(F <sub>s</sub> ) | Flame<br>Spread<br>Index<br>(I <sub>s</sub> ) | Coefficient<br>of<br>Variation<br>(percent) | Remarks                                                                                                   |
|----------------------|----------------------------|-------------------------|---------------------------------------------------|-------------------------|-----------------------------|------------------------------------------------|-----------------------------------------------|---------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| 20N F1               | 0-3                        | 0-3                     |                                                   |                         | 19                          | 1.00                                           | 4.3                                           |                                             |                                                                                                           |
| 20NC                 | 9-12                       | 9-12                    |                                                   |                         | 19                          | 3.39                                           | 36                                            |                                             |                                                                                                           |
| 20NC                 | 0-3                        | 0-3                     |                                                   |                         | 14                          | 1.00                                           | 3.2                                           |                                             |                                                                                                           |
| Avg.                 |                            |                         |                                                   |                         | 16                          | 4.69                                           | 20                                            | 82                                          | Malts; the drops fell to floor & burn<br>Malts; no burning on floor                                       |
| 20U F1               | 0-23                       | 0-3                     |                                                   | 0.3                     | 11                          | 1.00                                           | 2.5                                           |                                             | Some burning at pilot                                                                                     |
| 20U                  | 0-22                       | 0-3                     |                                                   | 0.2                     | 16                          | 1.00                                           | 3.6                                           |                                             |                                                                                                           |
| Avg.                 | 0.23                       |                         |                                                   | 0.3                     | 13                          | 1.00                                           | 3.0                                           | 18                                          |                                                                                                           |
| 20UC F1              |                            | 0-3                     |                                                   |                         | 15                          | 1.00                                           | 3.4                                           |                                             | Some burning at pilot                                                                                     |
| 20UC                 |                            | 0-3                     |                                                   |                         | 10                          | 1.00                                           | 2.3                                           |                                             |                                                                                                           |
| Avg.                 |                            |                         |                                                   |                         | 13                          | 1.00                                           | 2.9                                           | 19                                          |                                                                                                           |
| 27N R2               | 0.11                       | 15+                     | 3.1                                               | 2.9                     | 83                          | 11.28                                          | 214                                           |                                             |                                                                                                           |
| 27NC                 | 0.10                       | 9-12                    | 2.1                                               | 2.3                     | 107                         | 4.08                                           | 100                                           |                                             |                                                                                                           |
| 27NC                 | 0.10                       | 9-12                    | 2.1                                               | 2.2                     | 101                         | 4.20                                           | 97                                            |                                             |                                                                                                           |
| Avg.                 | 0.10                       |                         | 2.1                                               | 2.3                     | 104                         | 4.14                                           | 98                                            | 2                                           |                                                                                                           |
| 27U R2               | 0.                         | 15+                     | 2.9                                               | 2.5                     | 132                         | 9.87                                           | 297                                           |                                             |                                                                                                           |
| 27U                  | 0.1                        | 15+                     | 2.8                                               | 2.7                     | 115                         | 8.84                                           | 232                                           |                                             |                                                                                                           |
| Avg.                 | 0.13                       |                         | 2.9                                               | 2.6                     | 123                         | 9.35                                           | 264                                           | 1                                           |                                                                                                           |
| 27UC R2              | 0.11                       | 12-15                   | 2.8                                               | 2.7                     | 124                         | 12.35                                          | 349                                           |                                             |                                                                                                           |
| 27UC                 | 0.12                       | 12-15                   | 2.9                                               | 2.4                     | 123                         | 7.86                                           | 220                                           |                                             |                                                                                                           |
| Avg.                 | 0.12                       |                         | 2.9                                               | 2.5                     | 124                         | 10.11                                          | 285                                           | 23                                          |                                                                                                           |
| 70 F1                |                            | 0-3                     |                                                   | 0.2                     | 25                          | 1.00                                           | 5.7                                           |                                             | Cleaned with Parchloroethylene spot<br>cleaner and then placed in con-<br>ditioning room overnight to dry |
| 70                   |                            | 6-9                     |                                                   | 0.3                     | 29                          | 22.85                                          | 151                                           |                                             |                                                                                                           |
| Avg.                 |                            |                         |                                                   | 0.3                     | 27                          | 11.92                                          | 78                                            |                                             |                                                                                                           |

TABLE IV (Continued)

## TEST METHOD NBS RADIANT PANEL

Part 2 - Special Tests - New, Used and Cleaned Materials

| Material No. | Code | Ignition Time (min.) | Burn Length (in.) | Burn Rate (Initial 3" Length) (in./min.) | Smoke Factor (mg) | Heat Factor (deg. C.) | Flame Spread Factor (F <sub>g</sub> ) | Flame Spread Index (I <sub>g</sub> ) | Coefficient of Variation (percent) | Remarks |
|--------------|------|----------------------|-------------------|------------------------------------------|-------------------|-----------------------|---------------------------------------|--------------------------------------|------------------------------------|---------|
| 99N          | R2   | 0.10                 | 12-15             | 3.0                                      | 3.1               | 110                   | 12.38                                 | 311                                  |                                    |         |
| 99N          |      | 0.10                 | 12-15             | 3.0                                      | 3.2               | 94                    | 8.74                                  | 187                                  |                                    |         |
| Avg.         |      | 0.10                 |                   | 3.0                                      | 3.2               | 102                   | 10.56                                 | 249                                  | 25                                 |         |
| 99NC         | R2   | 0.10                 | 15+               | 3.1                                      | 2.3               | 86                    | 10.56                                 | 207                                  |                                    |         |
| 99NC         |      | 0.17                 | 15+               | 3.4                                      | 2.1               | 81                    | 13.78                                 | 255                                  |                                    |         |
| Avg.         |      | 0.13                 |                   | 3.3                                      | 2.2               | 84                    | 12.17                                 | 231                                  | 10                                 |         |
| 99U          | R2   | 0.09                 | 12-15             | 2.2                                      | 1.3               | 97                    | 10.54                                 | 233                                  |                                    |         |
| 99U          |      | 0.09                 | 12-15             | 2.9                                      | 0.9               | 87                    | 11.84                                 | 235                                  |                                    |         |
| Avg.         |      | 0.09                 |                   | 2.5                                      | 1.1               | 92                    | 11.19                                 | 234                                  | 1                                  |         |
| 99UC         | R2   | 0.11                 | 9-12              | 3.0                                      | 1.8               | 98                    | 4.23                                  | 95                                   |                                    |         |
| 99UC         |      | 0.12                 | 15+               | 3.0                                      | 2.1               | 104                   | 9.54                                  | 226                                  |                                    |         |
| Avg.         |      | 0.12                 |                   | 3.0                                      | 1.9               | 101                   | 6.89                                  | 160                                  | 41                                 |         |
| 100N         | R1   | 0.12                 | 3-6               | 2.8                                      | 1.4               | 44                    | 1.83                                  | 18                                   |                                    |         |
| 100N         |      | 0.13                 | 6-9               | 2.8                                      | 1.3               | 34                    | 3.08                                  | 24                                   |                                    |         |
| Avg.         |      | 0.13                 |                   | 2.8                                      | 1.4               | 39                    | 2.45                                  | 21                                   | 14                                 |         |
| 100NC        | R1   | 0.12                 | 6-9               | 7.9                                      | 1.2               | 29                    | 3.45                                  | 23                                   |                                    |         |
| 100NC        |      | 0.12                 | 6-9               | 2.5                                      | 1.2               | 39                    | 1.99                                  | 18                                   |                                    |         |
| Avg.         |      | 0.12                 |                   | 5.2                                      | 1.2               | 34                    | 2.72                                  | 20                                   | 13                                 |         |
| 100U         | R1   | 0.14                 | 6-9               | 12.5                                     | 1.2               | 36                    | 4.03                                  | 33                                   |                                    |         |
| 100U         |      | 0.14                 | 6-9               | 3.8                                      | 1.1               | 54                    | 3.00                                  | 37                                   |                                    |         |
| Avg.         |      | 0.14                 |                   | 8.2                                      | 1.2               | 45                    | 3.51                                  | 35                                   | 1                                  |         |
| 100UC        | R1   | 0.12                 | 6-9               | 16.7                                     | 1.4               | 59                    | 4.82                                  | 65                                   |                                    |         |
| 100UC        |      | 0.12                 | 6-9               | 16.7                                     | 1.3               | 55                    | 4.85                                  | 61                                   |                                    |         |
| Avg.         |      | 0.12                 |                   | 16.7                                     | 1.4               | 57                    | 4.84                                  | 63                                   | 3                                  |         |

Note: Letters after material no. signify: N - New; NC - New and Cleaned; U - Used; UC - Used and Cleaned.