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10 December 1969

Materiel Test Procedure 8-2-063
Deseret Test Center

U. S. ARMY TEST AND EVALUATION COMMAND
COMMODITY ENGINEERING TEST PROCEDURE

DECONTAMINATING KITS, INDIVIDUAL, FIELD

AD 866468

1. OBJECTIVE

The objective of this commodity engineering Materiel Test Procedure (MTP) is to establish uniform procedures for determining and evaluating the technical performance of individual field decontaminating kits in terms of the criteria established by applicable Qualitative Materiel Requirements (QMR), Small Development Requirements (SDR), Technical Characteristics (TC), and other design requirements and specifications.

2. BACKGROUND

Small field decontaminating kits are issued to individual soldiers for protection against chemical attack. In particular they are used to neutralize chemical agents in liquid droplet form which have impinged on the soldier's skin, clothing, or equipment. The kit is usually issued as an accessory to the field protective mask.

The protective kit enables the individual to take prompt action to protect himself if he is exposed to a surprise attack or accident, or if equipment and supplies for large-scale decontamination are not immediately available.

3. REQUIRED EQUIPMENT

a. Facilities:

- 1) Airfield and aircraft
- 2) Suitable test area
- 3) Environmental test chambers

- a) Temperature and humidity
- b) Pressure and altitude
- c) Salt fog
- d) Rain
- e) Dust
- f) Fungus
- g) Water immersion

- b. Vibration and Shock Equipment
- c. Protective Clothing and Equipment
- d. Still and Motion Picture Cameras
- e. Accelerometers
- f. Appropriate chemical agents
- g. Appropriate items for contamination

4. REFERENCES

STATEMENT OF WORK

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on 08/08/2010

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- A. USATECOM Regulation 385-6, Verification of Safety of Materiel During Testing.
- B. MIL-STD-810B, Environmental Test Methods.
- C. MIL-STD-1472, Human Engineering Design Criteria for Military Systems, Equipment, and Facilities.
- D. MIL-H-46855, Human Engineering Requirements for Military Systems, Equipment, and Facilities.
- E. MTP 7-1-002, Air Portability and Airdrop Service Testing.
- F. MTP 7-2-509, Airdrop Capability of Materiel.
- G. MTP 7-2-515, Air Transport (Suitability of Equipment for).
- H. MTP 8-2-500, Receipt Inspection.
- I. MTP 8-2-503, Rough Handling and Surface Transport.

5. SCOPE

5.1 SUMMARY

The procedure described in this MTP is divided into a series of subtests. The sequence may be modified by the test plan. The receipt inspection subtest must be performed first to ascertain the condition of test items as received from their manufacturer, the safety tests should be performed next to reveal any unforeseen hazards, and the outdoor performance tests should be performed last. In preparing the test plan, consideration should be given to the number of test items available, their susceptibility to damage, time available, availability of facilities, reliability and confidence limits set by QMR and SDR, and budget limitations. Subtests deemed most likely to cause failure should be performed first so that the developing agency may have the earliest possible notice of a deficiency.

The following subtests comprise the complete procedures:

- a. Receipt Inspection - An inspection of the test item as received to (1) determine its physical characteristics and conditions, (2) locate defects, and (3) identify damage received during transport. During this inspection, the test item will also be serially numbered for subsequent identification.
- b. Safety Evaluation - The objective of this procedure is to check the safety statement issued by the developing agency and to identify the safety hazards, if any, which must be included in the safety release recommendation required by reference 4A (USATECOM Regulation 385-6).
- c. Simulated Environmental Testing - An evaluation to determine the effects of cyclic storage, extreme temperatures, fungus, humidity, dust, sunshine, and fresh and salt water on the test item.
- d. Rough Handling and Surface Transport Tests - An evaluation to determine the effects of rough handling and surface transport on the physical and operational characteristics of the test item.
- e. Air Transportability - An evaluation to determine the effects of air transport conditions on the physical and operational characteristics of the test item.
- f. Airdrop Capability - An evaluation to determine the effects on the test item resulting from its being subjected to airdrop conditions.
- g. Operational Aspects - An evaluation to determine if the test item

meets specified effectiveness, reliability and safety criteria.

h. Human Factors Aspects - An evaluation to assess the ease of carrying and using the test item.

5.2 LIMITATIONS

None.

6. PROCEDURES

6.1 PREPARATION FOR TEST

6.1.1 Prescheduling Conditions

- a. A suitable test site must be available as necessary.
- b. A meteorological forecast must be available before the conduct of each outdoor subtest to prevent wasted effort in unsuitable weather.

6.1.2 Safety Statement

The test officer will insure that a safety statement is received from the developing agency before testing is commenced and that it is understood by all test personnel. The safety statement includes information pertaining to the test item's operational limitations and specifies hazards peculiar to the item or components which are to be tested.

6.1.3 Safety Procedures

- a. Test plans and procedures will insure performance in the safest manner consistent with accomplishing the mission. Plans will include safety procedures, precautions, protections, and emergency procedures as necessary. Technical information on the hazards and safety characteristics of the test item as provided by the safety statement and other pertinent information will be included. Such information will include an evaluation of potential hazards, analysis of risks, limitations, and precautions, including special test equipment and techniques that should be incorporated in test plans and procedures.
- b. One specific individual will be charged with responsibility for safety. He will be familiar with the construction and operation of the test item and its critical components, will have full knowledge of the hazards and safety aspects of the test, will review test procedures for evaluation of hazards, and will recommend control measures.
- c. All personnel who participate in or observe the tests will be briefed on the proper test methods and procedures.
- d. Test personnel are to be able to use chemical agent detector kits, recognize symptoms of chemical agent poisoning in themselves and others, and use first-aid and decontaminating procedures.
- e. A record will be kept of any injuries suffered by test personnel during testing, regardless of how minor they may be and regardless of their relevance to testing.

6.1.4 Security

Security considerations will be provided for as applicable to each of the procedures described in this MTP.

6.1.5 Logistical Requirements

Prior to the conduct of any subtest, the test officer will ensure that all logistical requirements are satisfied.

6.2 TEST CONDUCT

6.2.1 Receipt Inspection

The test item will be subjected to the applicable procedures of MTP 8-2-500 following its arrival at the test site, with emphasis on the following:

a. Adequacy of Packaging - Visually inspect the test item package and record the following:

- 1) Binding deficiencies such as broken straps, seals, etc.
- 2) Packaging material deficiencies such as cuts, tears, breaks, etc.
- 3) Rusty or corroded metal parts
- 4) Illegible or missing markings

b. Test item inspection:

- 1) Visually inspect the test item for damages such as corrosion, dents, cracks, etc.
- 2) Determine presence of opening key and the legibility of the instructions.
- 3) Open a representative sample and ascertain that the contents are correct and in good order.

c. Determine and record the following:

- 1) External dimensions and weight of the packaged test item
- 2) Dimensions and weight of the test item

d. Number serially and identify each test item to be used.

e. Photograph the damaged test items.

6.2.2 Safety Evaluation

a. Perform checks as required to verify all the safety aspects included in the safety statement prepared by the developing agency. Record deficiencies and recommended inclusions.

b. Record information for inclusion in the Safety Release Recommendation required by reference 4A (USATECOM Regulation 385-6).

6.2.3 Simulated Environmental Testing

6.2.3.1 Cyclic Storage

a. Subject the test item in its packing container to cycles of climatic extremes. A cycle shall consist of three weeks duration as follows: Successive one week tests at humid, low temperature, and high temperature. Chamber conditions for each climatic condition are as follows:

- 1) Humid Storage. The chamber shall be maintained at $113^{\circ}\text{F} \pm 2^{\circ}\text{F}$ and 85% R.H. for the duration of the test.
- 2) Low Temperature Storage. The chamber shall be maintained at $-65^{\circ}\text{F} \pm 2^{\circ}\text{F}$ for the duration of the test.
- 3) High Temperature Storage. The chamber shall be maintained at $160^{\circ}\text{F} \pm 2^{\circ}\text{F}$ for the duration of the test.

b. The test item shall be subjected to a minimum of three such cycles, or more if specified. Upon completion of each cycle, the container and contents shall be examined for damage.

6.2.3.2 Extreme-Temperature Tests

Unless obviated by design requirements, the test item will be subjected to the following temperature tests:

6.2.3.2.1 Low-Temperature Test - Place a minimum of four test items in a test chamber, and perform the following:

- a. Reduce the chamber temperature to -45.6°C (-50°F) and maintain it at -45.6°C for a period of 72 hours; then visually inspect the test items and record damage.
- b. Adjust the chamber temperature to the test item's minimum usable temperature as established by design requirements, and maintain this temperature until stabilization is reached. If stabilization is attained in less than 24 hours, maintain the temperature for a complete 24-hour interval and perform the following:

NOTE: Stabilization, unless otherwise specified, is considered to be reached when the temperature of the test item does not change more than 2°C (3.6°F) per hour.

- 1) Visually inspect the test items, and record damage.
- 2) Remove one half of the test items, and verify operability as described in paragraph 6.2.7.

NOTE: Operability checks should be accomplished within 15 minutes of removing the test items from the chamber.

c. Remove the items from the chamber, allow their temperature to stabilize at local ambient conditions, and perform the following:

- 1) Visually inspect the test items, and record damage.
- 2) Verify the operability of the test items by subjecting the remaining test items to the procedures of paragraph 6.2.7.

6.2.3.2.2 High-Temperature Test - Place a minimum of four test items in a temperature chamber, and perform the following:

a. Adjust the temperature of the chamber to 71.1°C (160°F) and a relative humidity of 15 percent, maintain these conditions for a minimum of 4 hours, and visually inspect the test items and record any damage.

b. Adjust the chamber to a temperature of 48.9°C (120°F) and a relative humidity of no more than 15 percent and maintain these conditions for a minimum of 24 hours. Then perform the following:

- 1) Visually inspect the test items, and record damage.
- 2) Remove one half of the test items, and verify their operability by subjecting them to the procedures of paragraph 6.2.7.

c. Remove the remaining test items from the chamber, subject them to local ambient temperature and humidity for 24 hours, and perform the following:

- 1) Visually inspect the test items, and record damage.
- 2) Verify the operability of the test items by subjecting them to the procedures of paragraph 6.2.7.

6.2.3.3 Fungus Test

a. Subject a minimum of four test items to the fungus test of Procedure I, Method 508, reference 4B (MIL-STD-810B).

b. At the completion of the cycling period, perform the following:

- 1) Visually inspect the items, and record signs of corrosion.
- 2) Open one half of the test items, and inspect their contents for the presence of fungus.
- 3) Verify the operability of the items by subjecting the remaining test items to the procedures of paragraph 6.2.7.

6.2.3.4 Humidity Test

a. Subject a minimum of 4 test items to the humidity cycling of Procedure I, Method 507, reference 4B (MIL-STD-810B).

b. At the completion of the cycling period, perform the following:

- 1) Visually inspect the items, and record any signs of corrosion.
- 2) Open one half of the test items, and inspect their contents for the presence of moisture.
- 3) Verify the operability of the test items by subjecting the remaining test items to the procedures of paragraph 6.2.7.

6.2.3.5 Dust Test

a. Subject a minimum of four of the test items to the exposure conditions of Procedure I, Method 510, reference 4B (MIL-STD-810B).

b. At the completion of the exposure period, perform the following:

- 1) Visually inspect the test items, and record any surface damage.
- 2) Open one half of the test items, and inspect their contents for the presence of dust.
- 3) Verify the operability of the test items by subjecting the remaining test items to the procedures of paragraph 6.2.7.

6.2.3.6 Sunshine Test

- a. Subject a minimum of four of the test items to the sunshine conditions of Procedure I, Method 505, reference 4B (MIL-STD-810B).
- b. At the completion of the exposure period, perform the following:

- 1) Visually inspect the test items, and record surface damage, such as deterioration of natural rubber and plastics.
- 2) Verify the operability of the test items by subjecting the test items to the procedures of paragraph 6.2.7.

6.2.3.7 Water Immersion Tests

- a. Subject a minimum of four test items to the water immersion conditions of Procedure I, Method 512, reference 4B (MIL-STD-810B). If design requirements establish depth of water, water temperature, or time of immersion different from the standard procedure, the test plan will so state.
- b. At the completion of the immersion test, open the test items, and inspect their contents for evidence of water penetration.

6.2.3.8 Salt Fog Test

- a. Subject a minimum of four test items, to the procedures of Procedure I, Method 509, reference 4B (MIL-STD-810B).
- b. At the completion of the salt fog spray exposure, perform the following:

- 1) Rinse the test items with clear water.
- 2) Visually inspect the test items for the presence of corrosion.
- 3) Open one half of the test items, and inspect their contents for evidence of water penetration and corrosion.
- 4) Verify the operability of the test items by subjecting the remaining test items to the procedures of paragraph 6.2.7.

6.2.3.9 Rain Test

- a. Subject a minimum of four test items to the rain conditions of Procedure I, Method 506, reference 4B (MIL-STD-810B).
- b. At the completion of the rain exposure, perform the following:

- 1) Visually inspect the test items for the presence of corrosion.
- 2) Open one half of the test items, and inspect their contents for evidence of water penetration and corrosion.
- 3) Verify the operability of the test item by subjecting the

remaining items to the procedures of paragraph 6.2.7.

6.2.4 Rough Handling and Surface Transport Tests

a. Subject the test item to the following procedures of MTP 8-2-503:

- 1) The vibration test of paragraph 6.2.2.2a.3)
- 2) The shock test of paragraph 6.2.2.1a.2)

b. At the completion of testing, perform the following:

- 1) Examine the test item for damage and deformation.
- 2) Verify the operability of the test item by subjecting it to the procedures of paragraph 6.2.7.

6.2.5 Air Transportability

6.2.5.1 Loading and Unloading

Determine the ease of loading and unloading the test item from an aircraft as described in the applicable sections of MTP 7-2-515 or as follows:

NOTE: Background information on air transportability is contained in MTP 7-1-002.

a. Load the test item in its shipping container aboard a typical cargo aircraft or simulated aircraft, using current standard loading equipment, and record the following:

- 1) Type of aircraft used or simulated
- 2) Shipping container length, width, height, weight, and material
- 3) Equipment used for loading
- 4) Difficulties encountered while loading
- 5) Method of tiedown
- 6) Any damage sustained by the package during loading

b. Unload the test item from the aircraft or simulated aircraft, and record the following:

- 1) Equipment used in unloading
- 2) Difficulties encountered while unloading

6.2.5.2 Simulated Flight Test

a. Subject a minimum of four test items, in their shipping container, to the following conditions simultaneously:

- 1) Ambient pressure at altitude of 50,000 ft. (or maximum altitude)

at which the test item must be capable of being flown, if stated in design requirements)

- 2) Flight vibration conditions as described in the procedures for equipment class g (shipment by common carrier) of Procedure X, Method 514, reference 4B (MIL-STD-810B). The test level will be in accordance with curve AB, figure 514-6, and time schedule IV of table 514-II in the referenced procedure.

b. At completion of the simulated altitude and vibration test, perform the following:

- 1) Examine the test item's container for cracks, breaks, etc.
- 2) Examine the test item for damage.
- 3) Verify the operability of the test items by subjecting them to the procedures of paragraph 6.2.7.

6.2.6 Airdrop Capability

6.2.6.1 Free Fall Test

NOTE: Perform the following prior to conducting the procedures of paragraph 6.2.6.2.

Subject a minimum of 10 test items, packaged in their original container to a free fall drop as follows:

a. Using a crane with a quick release hook raise the test item, over a specified type surface, to the height specified in the test plan.

b. Release the test item and perform the following:

- 1) Examine the test item's packaging for breaks, undone bindings, etc.
- 2) Examine the test item for damage and deformation.
- 3) Verify the operability of the test item by subjecting it to the procedures of paragraph 6.2.7.

6.2.6.2 Airdrop Container Tests

The airdrop of the test item, when in its shipping container and when assembled for field use, shall be determined as described in the applicable sections of MTP 7-2-509 and as follows:

6.2.6.2.1 Shipping Container Test - Perform the following:

a. Rig a minimum of 10 test items in the appropriate airdrop containers with attached accelerometers, and drop the containers from aircraft flying at the altitude and speed stipulated in the test plan. Record the following:

- 1) Aircraft type(s) used
- 2) Aircraft altitude
- 3) Aircraft air speed

- 4) Meteorological conditions
- 5) Air delivery system trajectory and impact velocities
- 6) Deceleration magnitude at impact in G's

b. Conduct visual coverage of the air drop test procedures with motion and still camera.

c. At the completion of the test, perform the following:

- 1) Visually examine the test item's package for, and record the presence of cracks, breaks, undone bindings, etc.
- 2) Visually examine the test items for, and record the presence of damages and/or deformations.
- 3) Verify the operability of the test items by subjecting them to the procedures of paragraph 6.2.7.

6.2.6.2.2 Field Use Test - Repeat steps a, b, and c2 and c3 with a test item dropped in field use condition.

6.2.7 Operational Aspects

- NOTE:
1. Testing for operational aspects will be conducted under the conditions presented in the test criteria and under applicable instructions, as based upon requirements contained in the applicable QMR or SDR or TC or other design requirement documentation.
 2. The test items undergoing operational aspect testing will have been previously subjected to the following test procedures:
 - a) Simulated environmental testing (paragraph 6.2.3).
 - b) Rough handling and surface transport tests (paragraph 6.2.4).
 - c) Simulated flight tests (paragraph 6.2.5.2).
 - d) Airdrop capability (paragraph 6.2.6).

6.2.7.1 Ease of Usage and Functional Effectiveness

a. Select a suitable test site and contaminate a suitable item or area with a chemical agent.

- NOTE:
1. The test site will meet all safety requirements and be of sufficient area to ensure that contamination is confined to the test site.
 2. Types of agents to be used will be prescribed by governing performance criteria and listed in the test plan.

b. Operate the test item as indicated in the applicable SDR's, QMR's, or TC's or other design requirement documentation, on a clear day, during daylight, without wearing gloves, or a mask and record the following:

- 1) Description of the test site.

- 2) Description of contaminated item
- 3) Chemical agent used
- 4) Adequacy and completeness of operating instructions
- 5) Method used to determine success of decontamination operation
- 6) Average time required for decontamination
- 7) Need for a buddy system

c. Repeat step b under the following conditions:

- 1) Personnel wearing gloves
- 2) Personnel wearing mask
- 3) Personnel wearing gloves and mask
- 4) During darkness
- 5) Under various environmental conditions

d. Record the following for method of determining decontamination during step c:

- 1) Effect of mask and gloves
- 2) Effect of darkness
- 3) Effect of environment

e. Pack the test item to simulate normal field carrying procedures and record the following:

- 1) Compatibility of the test item with:
 - a) Other field equipment
 - b) Personal mobility
- 2) Adequacy of carrying method.

6.2.7.2 Efficiency

Determine the level and area of contamination the test item is capable of decontaminating by operating the test item on items or areas until the following is determined:

- a. Maximum level of contamination that can be handled.
- b. Maximum level of decontamination that can be achieved under the conditions of step a.
- c. Maximum surface area that can be decontaminated to the condition of step b.

6.2.7.3 Reliability and Safety

During the conduct of paragraphs 6.2.7.1 and 6.2.7.2 record the following for each test item:

- a. Any parts of the body or clothing where decontaminant is not effective.

b. Ability of the decontaminant to resist:

- 1) Field usage
- 2) Laundering or shower
- 3) Rain
- 4) Perspiration
- 5) Other

c. Effects of decontaminant on:

- 1) Skin
- 2) Clothing
- 3) Comfort
- 4) Flammability

6.2.8 Human Factors Aspects

Throughout the conduct of all subtests required by the test plan, observations will be made regarding the human factors aspects of the test item. Record all inconveniences encountered in handling and using the test item and any accompanying instructional materials. Consult reference 4C (MIL-STD-1472) and reference 4D (MIL-H-46855) for discussions of the human factors relevant to the items under test. Specific aspects to be observed will include the following:

- a. Compatibility with field clothing and equipment, particularly with protective clothing, arctic clothing, etc.
- b. Simplicity and adequacy of operating instructions.
- c. Conformance of the test item's design to qualitative requirements, particularly whether it is as compact and light as possible commensurate with functional characteristics.
- d. Legibility of identification markings.
- e. Reactions of test personnel when using the test items.
- f. Ease of identifying items and components under daylight, darkness, and blackout conditions.
- g. Need for special tools or special handling.
- h. Level of training required.

6.3 TEST DATA

6.3.1 Receipt Inspection

a. Record the following:

- 1) Data collected as described in applicable section of MTP 8-2-500.
- 2) For the test item package:
 - a) Binding deficiencies
 - b) Packing material deficiencies
 - c) Deteriorated metal parts

- d) Illegible or missing markings
 - e) External dimensions and weight
- 3) For the test item:
- a) Damage to the test item
 - b) Absence of opening key, if applicable
 - c) Illegible or absent markings or instructions
 - d) Missing contents
 - e) Dimensions and weight of the test item

b. Retain all photographs

6.3.2 Safety Evaluation

Record the following:

- a. Deficiencies in safety statement
- b. Recommended inclusions to safety statement
- c. Information for inclusion in the Safety Release Recommendation

6.3.3 Simulated Environmental Testing

6.3.3.1 Cyclic Storage

Record the following:

- a. Test item identification number
- b. Cycle number
- c. Damage to:
 - 1) Container
 - 2) Test item

6.3.3.2 Extreme Temperature Test

6.3.3.2.1 Low Temperature Test -

Record the following for each test item:

- a. Test item identification number
- b. For -45.6°C (-50°F):
 - 1) Damages incurred
- c. For minimum usable temperature:
 - 1) Temperature in $^{\circ}\text{C}$
 - 2) Damage incurred
 - 3) Operational data collected as described in paragraph 6.2.7

d. For ambient temperature:

- 1) Temperature in °C
- 2) Test item damage
- 3) Operability data collected as described in paragraph 6.2.7

6.3.3.2.2 High Temperature Test -

Record the following for each test item:

- a. Test item identification number
- b. For 71.7°C (160°F):
 - 1) Damages incurred
- c. For 48.9°C (120°F):
 - 1) Damage incurred
 - 2) Operational data collected as described in paragraph 6.2.7
- d. For ambient temperature:
 - 1) Temperature in °C
 - 2) Damage incurred
 - 3) Operational data collected as described in paragraph 6.2.7

6.3.3.3 Fungus Test

Record the following for each test item:

- a. Test item identification number
- b. Evidence of corrosion
- c. Presence of fungus
- d. Operational data collected as described in paragraph 6.2.7

6.3.3.4 Humidity Test

Record the following for each test item:

- a. Test item identification number
- b. Evidence of corrosion
- c. Presence of moisture
- d. Operational data collected as described in paragraph 6.2.7

6.3.3.5 Dust Test

Record the following for each test item:

- a. Test item identification number
- b. Surface damage
- c. Evidence of dust penetration

d. Operational data collected as described in paragraph 6.2.7

6.3.3.6 Sunshine Test

Record the following for each test item:

- a. Test item identification
- b. Surface damage
- c. Operability data collected as described in paragraph 6.2.7

6.3.3.7 Water Immersion Tests

Record the following for each test item:

- a. Test item identification number
- b. During immersion:
 - 1) Depth of water over container, in inches
 - 2) Water temperature, in °F
 - 3) Presence of bubbling, if any
 - 4) Immersion time to bubbling, if any, in minutes
 - 5) Total immersion time, in minutes
- c. After immersion:
 - 1) Presence of corrosion
 - 2) Presence of water penetration

6.3.3.8 Salt Fog Test

Record the following for each test item:

- a. Test item identification number
- b. Evidence of corrosion
- c. Evidence of water penetration
- d. Operational data collected as described in paragraph 6.2.7

6.3.3.9 Rain Test

Record the following for each test item, as applicable:

- a. Test item identification number
- b. Presence of corrosion:
 - 1) Test item
 - 2) Test item components
- c. Evidence of water penetration
- d. Operability data collected as described in paragraph 6.2.7

6.3.4 Rough Handling and Surface Transport Tests

Record the following for each test item:

- a. Test item identification number
- b. Data collected as described in applicable sections of MTP 8-2-503
- c. Damage and deformation to test item exterior
- d. Operability data as described in paragraph 6.2.7

6.3.5 Air Transportability

6.3.5.1 Loading and Unloading

Record the data collected as described in applicable sections of MTP 7-2-515 or the following:

- a. Type of aircraft used or simulated
- b. Shipping container:
 - 1) Length, width and height, in inches
 - 2) Weight, in pounds
 - 3) Material
- c. Equipment used in loading
- d. Difficulties encountered while loading
- e. Damage incurred to the package while loading
- f. Method of tie down
- g. Equipment used in unloading
- h. Difficulties incurred in unloading
- i. Damage incurred to the package while unloading

6.3.5.2 Simulated Flight Test

- a. Record the following for each test item:
 - 1) Test item identification number
 - 2) Altitude simulated in feet
 - 3) For test shipping container:
 - a) Presence of cracks, breaks, etc.
 - b) Undone binding, if applicable
 - 4) Damage and deformation to the test item's exterior
 - 5) Operability data collected as described in paragraph 6.2.7

6.3.6 Airdrop Capability

6.3.6.1 Free Fall Test

Record the following for each item tested:

- a. Test item identification number
- b. Height of fall in feet and inches

- c. Type of surface (metal, wood, etc.)
- d. For test item package:
 - 1) Packaging material used
 - 2) Presence of cracks, breaks, etc.
 - 3) Undone binding
- e. For test item:
 - 1) Damage or deformities
 - 2) Operability data collected as described in paragraph 6.2.7

6.3.6.2 Airdrop Container Tests

- a. Record the following for each test item:
 - 1) Condition of test item (packaged, ready for field use)
 - 2) Test item identification
 - 3) Aircraft used
 - 4) Aircraft air speed
 - 5) Air conditions (calm, turbulent)
 - 6) Air delivery system trajectory
 - 7) Test item impact velocity in fps
 - 8) Deceleration magnitude of impact in G's
 - 9) For test item package:
 - a) Packaging material used
 - b) Presence of cracks, breaks, etc.
 - c) Undone binding
 - 10) For test item:
 - a) Damage or deformities
 - b) Operability data collected as described in paragraph 6.2.7
- b. Retain all motion and still pictures

6.3.7 Operational Aspects

6.3.7.1 Ease of Usage and Functional Effectiveness

- a. Record the following for each operation performed:
 - 1) Test item identification number
 - 2) Description of test site
 - 3) Description of contaminated area/item
 - 4) Chemical agent used
 - 5) For test personnel:
 - a) Special equipment used (none, mask, mask and gloves, gloves)

b) Need for a buddy system

- 6) Time of test (daylight, darkness)
- 7) Environmental conditions (rain, snow, clear, etc.)
- 8) Average time required for decontamination in minutes
- 9) Method used to determine success of decontamination operation

b. Record the effect of the following on determination of method effectiveness:

- 1) Masks and gloves
- 2) Darkness
- 3) Various environmental conditions

c. Record the following for test item portability:

- 1) Compatibility of test item with:
 - a) Other field equipment
 - b) Personal mobility
- 3) Adequacy of carrying method

6.3.7.2 Efficiency

Record the following:

- a. Maximum level of contamination that can be handled.
- b. Maximum level of decontamination that can be achieved under maximum allowable contamination.
- c. Maximum area that can be decontaminated to acceptable limits under maximum contamination level.

6.3.7.3 Reliability and Safety

Record the following:

a. Any part of the body or clothing where decontaminant is not effective.

b. Ability of the decontaminant to resist:

- 1) Field usage
- 2) Laundering or showering
- 3) Perspiration
- 4) Other

c. Effects of decontamination on:

- 1) Skin
- 2) Clothing
- 3) Comfort
- 4) Flammability

6.3.8 Human Factors Aspects

Record the following:

- a. Compatibility with field clothing and equipment.
- b. Simplicity and adequacy of operating instructions.
- c. Conformance of the test item's design to qualitative requirements.
- d. Legibility of identification markings.
- e. Reactions of test personnel when using the test items.
- f. Ease of identifying items and components under daylight, darkness and blackout conditions.
- g. Need for special tools or special handling.
- h. Level of training required.

6.4 DATA REDUCTION AND PRESENTATION

6.4.1 Receipt Inspection

- a. Data collected as a result of this procedure will be presented as indicated in applicable sections of MTP 8-2-500.
- b. The description of the item, number of items tested, and conditions upon receipt will be presented in tabular form.

6.4.2 Safety Evaluation

A Safety Release Recommendation, reference 4A, USATECOM Regulation 385-6, will be forwarded to U. S. Army Test and Evaluation Command within 30 days of the beginning of the test. The Safety Release Recommendation will contain the following information:

- a. Special safety considerations on hazards to personnel and materiel.
- b. Data and comments relative to safety hazards observed during any phase of testing.
- c. Comments relative to suggested safety improvements.

6.4.3 Simulated Environmental Testing

- a. The results of the subtests conducted will be presented in tabular or other suitable form.
- b. The results of the operational check tests performed at the conclusion of the various environmental tests will be presented in narrative or other suitable form.

6.4.4 Rough Handling and Surface Transport Tests

- a. The results of this subtest will be presented in tabular or other suitable form.
- b. Tables, photographs, narrative comments, or other suitable means of presentation will be used to report the results.

6.4.5 Air Transportability Test

- a. The results of this subtest will be presented as prescribed in MTP 7-1-002 and MTP 7-2-515.
- b. Air transport conditions will be reported in tabular or other convenient form.
- c. Narrative comments, photos, etc. may be included if required.

6.4.6 Airdrop Capability

- a. Present the results of the free fall test in narrative form.
- b. The results of the airdrop container subtest will be presented as prescribed in MTP 7-2-509, and will include the following:
 - 1) Type of aircraft
 - 2) Airspeed, altitude, and meteorological conditions
 - 3) Packaging material condition after test
 - 4) Maximum force on opening of parachute and on impact
- c. Present narrative comments and data regarding ease or difficulty encountered in accomplishing airdrop. Present photographs, as required, to show results of airdrop.
- d. Present data on operation of the test item after free fall and airdrop testing.

6.4.7 Operational Aspects

Data collected in accordance with paragraph 6.3.7 will be submitted to a qualified analyst for evaluation. Evaluated data will be presented in tabular form, or as otherwise appropriate, supplemented by narrative comments as required to substantiate conclusions. Indicate the number of tests, number of successful performances, and number of failures and malfunctions, and present an estimate of reliability and safety of the test item.

6.4.8 Human Factors

- a. Data shall be presented regarding the following human factors aspects:
 - 1) Size and weight considerations
 - 2) Identification markings
 - 3) Operating instructions and manuals:
 - a) Level of education or skill required
 - b) Clarity and ease of use
- b. Impairment of normal operations or mobility.
- c. Physical irritation or inconvenience caused by test item.
- d. Present a summary of comments regarding shortcomings and recommended improvements.

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