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POLLUTION ABATEMENT DISPOSABILITY RATINGS OF PACKAGING MATERIALS USED ABOARD UNITED STATES NAVAL SHIPS. VOLUME II

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Annapolis, Maryland

January 1974

NAVAL SHIP RESEARCH AND DEVELOPMENT CENTER
Bethesda, Md. 20034

POLLUTION ABATEMENT
DISPOSABILITY RATINGS OF PACKAGING MATERIALS USED ABOARD UNITED STATES NAVAL SHIPS

Volume II

by

Harold E. Achilles

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DEPARTMENT OF THE NAVY

NAVAL SHIP RESEARCH AND DEVELOPMENT CENTER

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DISPOSAL, SPECIAL NOTE

See volume I of this report for explanation of the contents of volume II.

It is assumed that shipboard waste packaging materials processed or unprocessed, which are to be disposed of by jettisoning, will be handled in accordance with the guidelines and standards set forth in OPNAV instruction 6240.3C of 20 April 1973. It also is assumed that all shipboard packaging materials used in packaging of hazardous materials which are to be disposed of will be handled in accordance with NAVSUP publication 4500, "Consolidated Hazardous Item List," of 1 July 1973.

PACKAGING MATERIALS DISPOSABILITY RATINGS
ADHESIVES(1)

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Nil
Specific Gravity, approx	Varies, depending on composition, from 0.9 to 1.5
Bulk Density, lb/ft^3, approx	(1)
Magnetic Susceptibility	Nil
Biodegradability	Extremely slow
Combustibility	(1)
Heating Value, Btu/lb, approx	(1)
Shreddability	(1)
Compactability	(1)
Sulfur, %, approx	(1)

Predisposal Processing				Environmental Impact		Disposability Rating Via	
Shipboard Disposal Processing Equipment	Shipboard Processing Feasibility						
	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine	Jettisoning	Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent for non-leakers; unsatisfactory for leakers
Compactor	Unsatisfactory	(2)	NA	Nil	Nil	NA	NA
Shredder	Unsatisfactory	(2)	NA	Nil	Nil	NA	NA
Shredder/Compactor	Unsatisfactory	(2)	NA	Nil	Nil	NA	NA
Incinerator	Unsatisfactory	(2)	NA	Nil	Nil	NA	NA
Shredder/Incinerator	Unsatisfactory	(2)	NA	Nil	Nil	NA	NA

(1) Adhesives bonded to other packaging materials are considered to have substantially the same disposability characteristics as the materials to which they are bonded.

(2) Depleted containers of potentially hazardous materials must be handled as required for removal of residual contents in accordance with specific instructions for individual materials before disposal of emptied containers. Reference: NAVSUP Publication 4500, "Consolidated Hazardous Item List, Storage and Handling," 1 July 1973 (NAVSUP Publ 4500 CHIL of 1 July 1973). It could be hazardous to shred, incinerate, or compact depleted (including leaking) containers of adhesives because some formulations may include volatile, readily flammable solvents. Such containers should be disposed of by jettisoning (negative buoyancy required) or by storage aboard ship for eventual transfer to a shore base for further handling.

PACKAGING MATERIALS DISPOSABILITY RATINGS
ADHESIVES (CLOSURES).

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
MMM-A-130	Adhesive, contact	18%-25% chloroprene rubber in an unspecified solvent	Bonding plastic decorative laminates to wood or metal	Nil	-
MMM-A-178	Adhesive, paper label, water resistant	Not specified	Used on soft wood, fiberboard, black or galvanized iron, glass, tin, enamel, painted & rubber surfaces	Nil	-
MMM-A-179	Adhesive, paper label, water resistant, water emulsion type	Not specified; water emulsion type	Adhesion of paper labels to substrates	Nil	-
MMM-A-189	Adhesive, synthetic rubber (hot or cold bonding)	Except for synthetic rubber, otherwise unspecified	For general use	Nil	-
MMM-A-193	Adhesive, vinyl acetate resin emulsion	Vinyl acetate resin	Dowel, mortise-tenon, lock, & finger joints	Nil	-
MMM-A-250	Adhesive, water-resistant (for closure of fiberboard boxes)	Not specified	Closure of fiberboard boxes	Nil	-
MMM-A-260	Adhesive, water-resistant (for sealing waterproof paper)	Composition unspecified; no toxic ingredients present	Manufacture & closure of waterproof paper bags, wraps, & case liners	Nil	Grade A: subsistence items Grade B: other than subsistence items Class 1: solvent base Class 2: water-emulsion Class 3: hot-melt
MMM-A-1617	Adhesive, rubber base, general purpose	Except for rubber base, otherwise unspecified	Noncritical applications where adhesive is not highly stressed; not for structural purposes, life rafts, inflatable boats, pontoons, etc	Nil	-
MIL-A-43529	Adhesive, for palletized unit loads	Not specified in detail; an aqueous vegetable or resin based material	To hold fiberboard containers securely when packed in loads to prevent lateral or lengthwise movement of containers & rubbing or impacting on each other or vehicle walls	Nil	-

PACKAGING MATERIALS DISPOSABILITY RATINGS
ADHESIVES (CLOSURES) (Cont)

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
MIL-A-8623	Adhesive, epoxy resin, metal-to-metal structural bonding	Epoxy base resin; amine activators, unspecified fillers, & solvents may be used	Structural bonding of metal, glass, plastic laminates, wood, & glass to each other & in combination	Nil	-
MIL-A-388	Adhesive & sealing compound, cellulose nitrate base	Cellulose nitrate base	Securing shipping labels; repairing & mending articles of cloth, wood, paper, china, glass, leather, metal, & plastic; sealing compound in manufacture of ammunition	Nil	-
MIL-A-5092	Adhesive, rubber base, general purpose	Except for rubber base, otherwise unspecified	Gasket sealing where lubricants, preservative compound, or oils are apt to contact the adhesive	Nil	-

PACKAGING MATERIALS DISPOSABILITY RATINGS
BAGS AND SACKS

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Substantially nil
Specific Gravity, approx	Paper: 0.7/1.15; microcrystalline wax: 0.9; polyethylene: 0.92; asphalt: 1.05; aluminum: 2.7
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Nil
Biodegradability	Extremely slow
Combustibility	Excellent
Heating Value, Btu/lb, approx	Paper: 7,600; cellophane: 7,600; natural fibers: 7,500; wax & polyethylene: 20,000
Shreddability	Excellent(1)
Compactability Unshredded Shredded	 Fair to good Good } some spring back
Sulfur, %, approx	Up to 0.5%

Shipboard Disposal Processing Equipment	Predisposal Processing: Shipboard Processing Feasibility: Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Environmental Impact: Atmosphere	Marine	Disposability Rating Via: Jettisoning(2)	Storage Aboard Ship for Transfer to Shore Base
None	Excellent	Excellent	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent	Fair to good	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent	Paper: excellent(1) textile: good(1)	Nil(1)	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent	Good(1)	Nil(1)	Nil	Nil	Excellent	Excellent
Incinerator	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent	Excellent(1)	Nil(1)	Nil	Nil	Excellent	Excellent

(1) Precautions should be observed to avoid feeding large masses or bundles of cotton or other natural fiber sacks at one time into shredders in order to prevent jamming or clogging of equipment.
(2) Negative buoyancy required.

PACKAGING MATERIALS DISPOSABILITY RATINGS
BAGS AND SACKS

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
UU-B-38	Bags, paper, hardware	Cellulose	For irregular shaped & heavy hardware items	Substantially nil	Made of heavyweight paper for extra strength
UU-B-0040	Bag, paper, shopping	Cellulose	Shopping bag	Substantially nil	-
UU-S-48	Sack, shipping, paper	Heavy duty shipping sack, kraft paper; cellulose; adhesive: unidentified; thread, cotton: cellulose; sealing compound: typical, microcrystalline wax plus polyethylene	Shipment of unusually wide range of commodities; thus, asphalt, cement, chemicals, dried glues, fertilizers, foods, grains, meals (cotton seed, soy, etc), minerals (asbestos fiber, graphite, rockwool), etc	Substantially nil	A highly detailed specification: 5 types, 2 classes, 2 styles
PPP-B-15	Bags & envelopes, cellophane, for packaging	Cellophane: regenerated cellulose	Bags & envelopes for prepackaging items requiring protective packaging	Substantially nil	2 types, 10 classes, covering a wide range of protective conditions
PPP-B-20	Bags, cotton, mailing	Cellulose	Mailing of small items or parts	Substantially nil	-
PPP-S-30	Sacks, shipping, paper (cushioned) or reinforced	Kraft paper: cellulose; cushioning material: unidentified	Type I: exterior packaging for shipment of publications, small parts, etc: type II: interior packaging of fragile items as bottled liquids, radio tubes, laboratory & testing equipment	Substantially nil	-
PPP-B-35	Bags, textile, shipping, burlap, cotton, & waterproofed laminates	Type I: burlap, jute type II: cotton, cellulose type III: laminated, 7 classes, general composition - paper: cellulose; asphalt: hydrocarbon; textile: cotton; latex: unidentified; plastic: polyethylene; adhesive: unidentified type IV: textile, cotton	Domestic or overseas shipment of supplies: pulverized, granular, or crystalline material & of a hygroscopic or nonhygroscopic nature	Substantially nil	Type III, 3 grades: grade 1 - cotton sheeting; grade 2 - cotton Osnaburg; grade 3 - jute burlap
MIL-B-117	Bags, sleeves, & tubing; interior packaging	Paper: cellulose; plastic: polyethylene; foil: aluminum	Heat sealable interior packaging; shipping & storage under all climatic conditions	Substantially nil	Specification describes different levels of protection required, sizes of containers, & limitations on weights of contents

PACKAGING MATERIALS DISPOSABILITY RATINGS

BAGS AND SACKS (Cont)

Applicable Specifications					Remarks
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	
MIL-B-137	Bags & sacks for packaging & packing subsistence items	Paper; cellulose; textile; cellulose typical	Packaging & packing of subsistence items	Substantially nil	-

PACKAGING MATERIALS DISPOSABILITY RATINGS
BARRELS AND [illegible] (WOOD)

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	All excellent until deteriorated to rejection level
Specific Gravity, approx	Wood: varies with species, 0.4-0.75; steel: 7.7
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Wood: nil; steel: excellent
Biodegradability	Extremely slow
Combustibility	Wood: excellent; steel: nil
Heating Value, Btu/lb, approx	Wood: 8,500; steel: nil
Shreddability	Wood & steel: excellent(1)
Compactability	Wood & steel: excellent
Sulfur, %, approx	Wood: 0.15; steel: zero

Predisposal Processing				Environmental Impact		Disposability Rating Via	
Shipboard Disposal Processing Equipment	Shipboard Processing Feasibility					Jettisoning(2)	Storage Aboard Ship for Transfer to Shore Base
	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine		
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent(1)	Excellent(1)	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent(1)	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent(1)	Excellent	Nil	Nil	Nil	Excellent	Excellent
Incinerator	Excellent(1)	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent(1)	Excellent	Nil	Nil	Nil	Excellent	Excellent

(1) Assumes that rejected containers can be fed into hoppers of units or can be readily reduced by ship's personnel to sizes small enough to fit into feed hoppers of processing units.
(2) Negative buoyancy required.

PACKAGING MATERIALS DISPOSABILITY RATINGS
BARRELS AND KEGS (WOOD)

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
NN-K-231	Kegs, wood, slack	Wood: primarily cellulose & lignin; steel: ferrous alloys for hoops, wires, cleats, nails, brads, etc	Shipment of nails, bolts, nuts, & similar	Excellent until deteriorated to rejection level	Wide variety of woods permissible
PPP-B-41	Barrels, wood, slack	As above	Shipment of dry powdered materials or solids in bulk	As above	As above
AIL-D-112	Drums: plywood	Wood: principally cellulose & lignin: plywood adhesive: identity undisclosed	Shipment of dry products & semisolid products	As above	Hoops of elm: when specified, drums shall be furnished with plastic film, bag liners, barrier, lining

PACKAGING MATERIALS DISPOSABILITY RATINGS
BARRIER MATERIALS, LAMINATES (Cont)

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
MIL-L-10547	Liners, case, & sheet, overwrap: water-vaporproof or waterproof, flexible	Materials conform to PPP-B-1055 type I: most often used; type II: used when depth of case liner exceeds 36 inches; type III: overwrap sheets used as barriers around intermediate boxes; type IV: as for type I & II liners; closed & sealed case liner, sealed overwrap sheet, or plastic bag liner protects from water, dust, dirt, etc	Fitted barriers used inside shipping containers	Nil	-
MIL-P-20293	Paper, kraft, asphalt-impregnated	Paper: cellulose; asphalt: blown hydrocarbon, not more than 30% asphalt for cans under MIL-C-2434 & MIL-C-055	Manufacture of co.. ainers for ammunition	Nil	-
PPP-P-1055	Barrier material, waterproofed, flexible	Kraft paper (cellulose), laminated with asphalt (hydrocarbon), nylon (polymeric amide), cords, or strands	Class — Use B-1 baling & interior wraps B-2 baling & interior wraps B-3 baling & interior wraps C-1 interior wraps C-2(a) interior wraps & crate liners E-1 as for C-2(a) E-2 interior wraps, crate liners, shrouds, baling H-1 case liners, shrouds, crate liners H-2 case liners H-3(a) case liners H-4 case liners H-5 case liners, shrouds, crate liners L-2(b) case & crate liners L-4 temporary tarpaulins M-1 case liners, shrouds, & crate liners	Substantially nil	Sealable, except classes B-1, B-2, B-3, L-4; reinforced with cords or strands: classes E-1, E-2, L-4; abrasion resistance when wet: both plies: class L-4; outer plies: classes B-1, H-2, H-3(a), H-4, H-5, M-1

PACKAGING MATERIALS DISPOSABILITY RATINGS
BARRIER MATERIAL - METAL (ALUMINUM FOIL)

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	2.7
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Nil
Biodegradability	Extremely slow
Combustibility	Nil
Heating Value, Btu/lb, approx	Nil
Shreddability	Excellent
Compactability	Excellent
Sulfur, %, approx	Zero

Predisposal Processing				Environmental Impact		Disposability Rating Via	
Shipboard Disposal Processing Equipment	Shipboard Processing Feasibility						
	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine	Jettisoning	Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Incinerator	Excellent	Excellent (1)	Nil (1)	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent	Excellent (1)	Nil (1)	Nil	Nil	Excellent	Excellent

(1) Aluminum foil is expected to melt & pass through incinerator grates into ash pits without adverse effects on unit.

PACKAGING MATERIALS DISPOSABILITY RATINGS

BARRIER MATERIAL - METAL (ALUMINUM FOIL) (Cont)

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
MIL-A-148	Aluminum foil	Aluminum	Use with method I & submethod IB-2 & as greaseproof wrap where applicable in accordance with MIL-P-116. Dry annealed: For use in contact with food items & for manufacture of composite barrier materials. Slick annealed: For uses other than dry annealed. Foil 0.0005 inch & less: For aircraft applications such as shielding or insulating components.	Limited to occasional items	

PACKAGING MATERIALS DISPOSABILITY RATINGS
BARRIER MATERIALS - PLASTIC

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	Vinyl chloride: 1.3; polyester: 1.1; polyethylene: 0.92; polypropylene: 0.90
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Nil
Biodegradability	Extremely slow
Combustibility	Excellent
Heating Value, Btu/lb, approx	Varies widely; refer to note (1) below
Shreddability	Excellent(2)
Compactability Unshredded Shredded	Good
Sulfur, %, approx	[illegible]
Chlorine, %, approx	Polyvinyl chloride only: up to 57%; others: nil

Shipboard Disposal Processing Equipment	Predisposal Processing Shipboard Processing Feasibility			Environmental Impact		Disposability Rating Via	
	Ease of Preshandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine	Jettisoning(3)	Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	NA	Excellent	Excellent
Compactor	Excellent	Good	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent(2)	Good(2)	Nil(2)	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent(2)	Good(2)	Nil(2)	Nil	Nil	Excellent	Excellent
Incinerator	Excellent	Excellent	Nil(4)	Nil(4)	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent(2)	Excellent(2)	Nil(2),(4)	Nil(4)	Nil	Excellent	Excellent

(1) Heating values, Btu/lb, approx - polyethylene & polypropylene: 20,000; polyester: 12,800; polyvinyl chloride: 7,800.
(2) Large bundles or masses of plastic film should not be fed at one time into shredders in order to avoid jamming or clogging the units.
(3) Negative buoyancy required.
(4) Incineration of large quantities of polyvinyl chloride at any one time aboard ship is unlikely to occur. However, as a precautionary measure, this should be avoided. Incineration of PVC aboard ship under normal circumstances is not expected to give rise to any operational or environmental hazards.

PACKAGING MATERIALS DISPOSABILITY RATINGS
BARRIER MATERIALS - PLASTIC

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
L-P-375	Plastic film, flexible, vinyl chloride	Polyvinyl chloride	General application: waterproof covers, containers, equipage, & packaging materials	Substantially nil	-
L-P-377	Plastic sheet & strip, polyester	Polyester; exact composition may vary dependent on formulation	General usage in packaging & industrial applications	Substantially nil	-
L-P-378	Plastic sheet & strip, thin gage, polyolefin	Types I & II: polyethylene; type III: polypropylene	General purpose packaging applications where high degree of water resistance, moderate moisture vapor resistance, & dust protection are required	Substantially nil	-
MIL-P-22191	Films, transparent, flexible, heat sealable, for packaging applications	Composition unspecified; must be made of such materials & by such processes so as to ensure compliance with specification; plastic unidentified	Packaging small aeronautical, missile, rocket components, & similar parts, & assemblies for making bags in accordance with MIL-B-22205	Substantially nil	Type I: water vapor, water, & greaseproof; type II: water & greaseproof; type III: waterproof
MIL-P-45213	Film, plastic transparent, for skin packaging	Laminated of nylon & ionomer; nylon 6 film coated on one surface with polyvinyl chloride	For use in automatic packaging machines	Substantially nil	-
MIL-B-81374	Barrier material, greaseproof, waterproof, flexible, high strength	Composition unspecified; must be made of materials & by processes which ensure compliance with specification	Used for interior wrap & for fabrication of envelopes for general purpose packaging of military parts & equipment for storage & shipment; useful for packaging of high density items	Substantially nil	Only one type of barrier under spec; must be greaseproof, waterproof, flexible, high strength, heat sealable, & noncorrosive

PACKAGING MATERIALS DISPOSABILITY RATINGS
BOXES - FIBERBOARD

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	Fiberboard: 0.7/1.15; wood: 0.4/0.75; steel: 7.7; wax: 0.85
Bulk Density, lb/ft³, approx	NA
Magnetic Susceptibility	Steel: excellent; other components: nil
Biodegradability	Extremely slow
Combustibility	Excellent
Heating Value, Btu/lb, approx	Fiberboard: 7,800; wood: 8,500; steel: nil; wax: 20,000
Shreddability	Excellent
Compactability Unshredded Shredded	 Good (some spring back) Good (some spring back)
Sulfur, %, approx	Wood: 0.15; steel: nil; wax: 0.1

Shipboard Disposal Processing Equipment	Predisposal Processing Shipboard Processing Feasibility			Environmental Impact		Disposability Rating Via	
	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine	Jettisoning	Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent(1)	Good	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent(1)	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent(1)	Good	Nil	Nil	Nil	Excellent	Excellent
Incinerator	Excellent(1)	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent(1)	Excellent	Nil	Nil	Nil	Excellent	Excellent

(1) May require reduction in size by ship's force so that fragments fit into feed hoppers of units.

PACKAGING MATERIALS DISPOSABILITY RATINGS
BOXES - FIBERBOARD

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
PPP-B-591	Boxes, fiberboard, wood cleated	Fiberboard; cellulose; wood; cellulose plus lignin; nails; steel	Packing type 1 & 2 loads only shipment of supplies & materials	Limited only to occasional repairable items	Type 3 load packing; only if converted to type 1 & 2 loads by suitable interior packaging
PPP-B-636	Box, fiberboard	Fiberboard; cellulose	Covers fabrication of new fiberboard boxes, liner, sleeves, & requirements for assembly, use, waterproofing, closure, & reinforcing of packed boxes as applicable		Weather resistant & domestic classes
PPP-B-640	Boxes, corrugated, triple wall	Cellulose; zinc-coated ferrous roofing nails; zinc-coated or copper washed staples	Domestic & overseas shipment & storage of supplies & equipment, when gross loads exceed limits of PPP-B-636		-
PPP-B-655	Box, fiberboard, six or eight sides	Cellulose	Shipment of rope, hose, household goods; for objects not susceptible to damage		-
MIL-B-38721	Boxes, consolidation, fiberboard	Cellulose	Weather resistant packaging where high stacking strength required		Double & triple wall corrugated
PPP-F-320	Fiberboard; corrugated & solid, sheet stock (container grade) & cut shapes	Cellulose	Covers fabrication of new fiberboard boxes, liners, sleeves, etc		
PPP-B-1163	Box, corrugated, fiberboard, high compression strength, water resistant, wax-resin impregnated	Fiberboard; cellulose; impregnating materials; wax (hydrocarbon); resins, unidentified	Where high stacking strength is required, where ultimate handling atmosphere is moisture laden, inner product is iced or wet packed, uncovered storage conditions prevail		-
PPP-B-1364	Box, corrugated, fiberboard, high strength, weather resistant, double wall	Fiberboard; cellulose; adhesives; unidentified, but water resistant	Domestic & overseas consolidation shipment of general supplies, aircraft parts & military equipment; typical use; shipment of equipment, components, etc from contractor to supply depot, from depot to depot, etc		-

PACKAGING MATERIALS DISPOSABILITY RATINGS
BOXES, OTHER THAN ALL WOOD BOXES

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	Wood: varies with species, 0.4-0.75; steel: 7.7; wax: 0.9
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Steel: excellent; others: nil
Biodegradability	Extremely slow
Combustibility	Steel: nil; others: excellent
Heating Value, Btu/lb, approx	Wood: 8,500; steel: nil; wax: 20,000
Shreddability	Wood: excellent; steel: dependent on thickness(1)
Compactability Unshredded Shredded	 Wood & steel: varies, depending on thickness Excellent
Sulfur, %, approx	Wood: 0.15; steel: zero

Shipboard Disposal Processing Equipment	Predisposal Processing: Shipboard Processing Feasibility: Ease of Prehandling by Ships' Personnel	Predisposal Processing: Shipboard Processing Feasibility: Relative Ease of Processing	Predisposal Processing: Shipboard Processing Feasibility: Effect(s) on Processing Equipment	Environmental Impact: Atmosphere	Environmental Impact: Marine	Disposability Rating(2) Via: Jettisoning(3)	Disposability Rating(2) Via: Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent(1)	Good(1)	Nil(1)	Nil	Nil	Excellent(1)	Excellent(1)
Shredder	Excellent(1)	Excellent(1)	Nil(1)	Nil	Nil	Excellent(1)	Excellent(1)
Shredder/Compactor	Excellent(1)	Excellent(1)	Nil(1)	Nil	Nil	Excellent(1)	Excellent(1)
Incinerator	Excellent(1)	Excellent(1)	Nil(1)	Nil	Nil	Excellent(1)	Excellent(1)
Shredder/Incinerator	Excellent(1)	Excellent(1)	Nil(1)	Nil	Nil	Excellent(1)	Excellent(1)

(1) Does not apply to deteriorated steel containers which are too large to be prehandled by ship's personnel or handled with shipboard disposal processing equipment.
(2) Applies only to packaging deteriorated to rejection level.
(3) Negative buoyancy required.

PACKAGING MATERIALS DISPOSABILITY RATINGS
BOXES, OTHER THAN ALL WOOD BOXES

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
MIL-B-11886	Boxes, metal, shipping, reusable, transporter, steel; max load: 9,000 lb	Steel	Transportation of high density military & quasi-military cargo when security & pilferage are paramount considerations	Excellent	-
MIL-B-26195	Boxes, wood cleated, skidded, load-bearing base	Wood: cellulose + lignin; plywood: cellulose + lignin; fiberboard: cellulose; nails, staples: cement coated etched steel; bolts: steel	For domestic & overseas loads less than 2,500 lb & dimension not over 16 ft; to be used for items which can be attached to a load-bearing base	Excellent	-
MIL-B-26241	Boxes, demountable, assembled with fasteners other than nails or screws	Lumber, plywood, paper overlaid veneer: cellulose + lignin; strapping: steel	For repeated assembly & disassembly for domestic & overseas shipments	Excellent	Type I: domestic; type II: overseas; class 1: plywood panel; class 2: paper overlaid veneer panel; class 3: fiberboard panel
MIL-B-43666	Boxes, shipping inserts, consolidation	Wood: cellulose + lignin; plywood: cellulose + lignin + unidentified bonding agent; wire: annealed low carbon steel; fiberboard boxes: wax impregnated	Modular size shipments requiring weather resistance	Limited	-
MIL-B-52508	Box, metal, shipping, reusable, transporter, controlled humidity; capacity: 270 ft^3 max load: 9,000 lb	Low carbon steel	Transportation of high-density military & quasi-military cargo with a minimum amount of preservation & packaging when nature of cargo requires surrounding air to be maintained at 40% maximum relative humidity to prevent corrosion; also, security & protection from pilferage are major considerations	Excellent	-

PACKAGING MATERIALS DISPOSABILITY RATINGS
BOXES, PAPERBOARD

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Only for occasional returnable item
Specific Gravity, approx	Paperboard: 0.7/1.15; steel: 7.7; wax: 0.85
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Steel: excellent; other components:nil
Biodegradability	Extremely slow
Combustibility	Excellent
Heating Value, Btu/lb, approx	Paperboard: 7,800; Steel: Nil; Wax: 20,000
Shreddability	Excellent
Compactability Unshredded Shredded	Good; some spring back some spring back some spring back
Sulfur, %, approx	Wood: 0.15; steel: nil; wax: 0.1

Predisposal Processing				Environmental Impact		Disposability Rating Via	
Shipboard Disposal Processing Equipment	Shipboard Processing Feasibility					Jettisoning	Storage Aboard Ship for Transfer to Shore Base
	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine		
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent	Good	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent	Good	Nil	Nil	Nil	Excellent	Excellent
Incinerator	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent

PACKAGING MATERIALS DISPOSABILITY RATINGS

BOXES, PAPERBOARD

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
PPP-B-566	Boxes, folding, paperboard	Cellulose	For content not greater than 20 lb; only for articles not easily susceptible to damage by ordinary distortion of box due to external force action during shipment	Only for occasional returnable item	-
PPP-B-665	Boxes, paperboard, metal stay (including stay material)	Paperboard: cellulose; stays: cold rolled steel, lacquered	Intermediate containers; provids protection of contents and/or convenience of handling		Paperboard not less than 95%, unbleached (kraft) fiber
PPP-B-676	Boxes, setup	Paperboard: cellulose; adhesives: wax type; chemical treating agent otherwise unidentified	Describes new setup boxes & closure of filled boxes; grease & water resistant; may be used for food packaging		May be chemically treated or have liner
MIL-B-43014	Boxes, water-resistant, paperboard, folding, setup & stayed	Paperboard: cellulose; stays: cold rolled steel, lacquered; adhesive: water-resistant; otherwise unidentified	For contents not greater than 20 lb; for shipments requiring protection from water; for packaging items in boxes of comparable styles, types, & classes of existing specifications to a greater advantage		-

PACKAGING MATERIALS DISPOSABILITY RATINGS
BOXES, WOOD

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Good, until deteriorated to rejection level
Specific Gravity, approx	Wood: varies with species; 0.4-0.75; steel; 7.7
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Wood: Nil; steel: excellent
Biodegradability	Extremely slow
Combustibility	Wood: excellent; metal: nil
Heating Value, Btu/lb, approx	Wood: 3,500; steel: nil
Shreddability	Excellent
Compactability	Excellent
Sulfur, %, approx	Wood: 0.15%; steel: nil

Shipboard Disposal Processing Equipment	Predisposal Processing — Shipboard Processing Feasibility			Environmental Impact		Disposability Rating Via	
	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine	Jettisoning	Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent (1)	Excellent (1)	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent (1)	Excellent (1)	Nil	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent (1)	Excellent (1)	Nil	Nil	Nil	Excellent	Excellent
Incinerator	Excellent (1)	Excellent (1)	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent (1)	Excellent (1)	Nil	Nil	Nil	Excellent	Excellent

(1) Boxes must be reduced by ships personnel to sizes sufficiently small to fit into feed hoppers of processing units.

PACKAGING MATERIALS DISPOSABILITY RATINGS
BOXES, WOOD

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
PPP-B-576	Boxes, wood, cleated, veneer, paper overlaid	Wood: cellulose + lignin; paper: cellulose	Class 1: normal domestic shipments when additional strength of class 2 box is not required; class 2: for off-shore & overseas shipments where rough handling, variable storage, & climatic extremes conditions prevail	Good, until deteriorated to rejection level	Four groups of species of woods for wood cleats are identified
PPP-B-580	Boxes, wood, household goods	Wood: cellulose + lignin	Shipment of household goods	Good, until deteriorated to rejection level	
PPP-B-601	Boxes, wood, cleated-plywood	Wood: cellulose + lignin; plywood: cellulose + lignin + unidentified bonding agent, water repellant wood preservative; nails: cement coated, acid etched; staples & wires: steel	Domestic-type boxes for normal use when additional strength of overseas box is not required; weight of contents: 150 lb max; overseas-type boxes: weight of contents - 1,000 lb max unless permitted by procuring agency	Good, until deteriorated to rejection level	Four groups of species of woods for wood cleats are identified
PPP-B-621	Boxes, wood, nailed & lock corner	Wood: cellulose + lignin; nails, wires, & staples: steel	Shipping containers, domestic & overseas	Good, until deteriorated to rejection level	-

PACKAGING MATERIALS DISPOSABILITY RATINGS

BOXES, WOOD (WIREBOUND)

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Good, until deteriorated to rejection level
Specific Gravity, approx	Wood: varies with species, 0.4-0.75; steel: 7.7
Bulk Density, lb/ft³, approx	NA
Magnetic Susceptibility	Wood: nil; steel: excellent
Biodegradability	Extremely slow
Combustibility	Wood: excellent; metal: nil
Heating Value, Btu/lb, approx	Wood: 8,500; metal: nil
Shreddability	Excellent (1)
Compactability	Excellent (1)
Sulfur, %, approx	Wood: 0.15%; steel: nil

Predisposal Processing				Environmental Impact		Disposability Rating Via	
Shipboard Disposal Processing Equipment	Shipboard Processing Feasibility						
	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine	Jettisoning	Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent	Excellent (1)	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent	Excellent (1)	Nil	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent	Excellent (1)	Nil	Nil	Nil	Excellent	Excellent
Incinerator	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent	Excellent (1)	Nil	Nil	Nil	Excellent	Excellent

(1) Feeding large bundles or long lengths of wire at one time into compactor or shredder should be avoided in order to prevent interrupting operation of units.

PACKAGING MATERIALS DISPOSABILITY RATINGS
BOXES, WOOD (WIREBOUND)

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
PPP-B-585	Boxes, wood, wirebound	Wood: cellulose + lignin; nails: steel; wire: low carbon annealed steel; staples: galvanized low carbon steel	Shipments, domestic & overseas, of loads less than 4,000 lb, & not requiring protection of closed or fully sheathed crates	Good, until deteriorated to rejection level	-
PPP-B-589	Boxes, wood, wirebound, pallet type	Wood: cellulose + lignin; nails: steel; wire: low carbon annealed steel; staples: galvanized low carbon steel	Shipments, domestic & overseas, of supplies & materials not exceeding 2,500 lb; typical items: batteries in cartons, chests, kits, boxed instruments, hardware in cartons, goods in metal cans, machine parts	Good, until deteriorated to rejection level	-

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PACKAGING MATERIALS DISPOSABILITY RATINGS
BULK PACKAGING MATERIALS

Applicable Specification#	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Refer to next page; varies among specifications
Specific Gravity, approx	Wood: varies with species, 0.4-0.75; plastic film: varies depending on plastic, 0.91-1.45; fiberboard: 0.7-1.15
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Nil
Biodegradability	Extremely slow
Combustibility	Excellent
Heating Value, Btu/lb, approx	Paperboard: 6,400-7,800; wood: 8,500; paper: 7,700; plastic film: varies depending on selection: 4,500-19,000
Shreddability	Excellent (1)
Compactability Unshredded Shredded	 Plastic: fair; others: excellent Plastic: good; others: excellent
Sulfur, %, approx	Wood: .15%; plastic: varies, 0.1-0.5%; fiberboard: 0.15%; paper: 0.15%

Shipboard Disposal Processing Equipment	Predisposal Processing — Shipboard Processing Feasibility			Environmental Impact		Disposability Rating Via	
	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine	Jettisoning	Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent	Plastic: fair; Others: good	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent	Excellent (1)	Nil (1)	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent	Plastic: good (1) Others: excellent (1)	Nil (1)	Nil	Nil	Excellent	Excellent
Incinerator	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent	Excellent (1)	Nil (1)	Nil	Nil	Excellent	Excellent

(1) Feeding large bundles or masses of plastic film at one time into shredder should be avoided to prevent clogging or jamming

PACKAGING MATERIALS DISPOSABILITY RATINGS

BULK PACKAGING MATERIALS

Applicable Specifications					Remarks
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	
NN-P-530	Plywood, flat panel	Cellulose + lignin + unspecified bonding material	Bulk packaging	Occasional only	-
PPP-V-205	Veneer, paper overlaid, container grade	Wood: cellulose + lignin; paper: cellulose; adhesive: unspecified; glue, type II, paper overlaid veneer: for each 100 lb of glue there shall be added 5 lb of one of the following - pentachlor phenol, tetrachlorphenol, sodium pentachlor phenate, or sodium tetrachlor phenate	Combination wood & paper panel materials, container grade; type I: for normal use; type II: for extra protection during shipment & storage	Occasional only	-
PPP-F-320	Fiberboard, corrugated & solid, sheet stock (container grade) & cut shapes	Cellulose	Used for fabrication of boxes, pads, sleeves, box liners, partitions, & cut shapes; details re type, class, variety, grade, & applicable box specifications are shown in the table on the next page	Limited to occasional returnable items	-
MIL-P-14591	Plastic film: nonrigid, transparent	Identity of plastic may vary as selected by supplier	Windows, fabric tops, ducks, & fabric covers for military vehicles & similar applications	Occasional only	-

COMMON END USES (PPP-F-320)

Fiberboard is used in the fabrication of boxes, pads, sleeves, box liners, partitions, and cut shapes. The types, classes, varieties, and grades of fiberboard sheet stock covered in 1.2.1 of this specification are used for fabricating boxes in compliance with the specifications cited below. When a box specification is cited in the ordering data (see 6.2), any additional fiberboard requirements specified in the box specification shall also apply. In cases of conflicting material requirements, the box specification shall prevail.

Type	Class	Variety	Grades	Box specification
CF	Domestic	SW	125, 175, 200, 275, 350	PPP-B-636
CF	Domestic	SW	200, 275, 350	PPP-B-591
CF	Domestic	SW	275	PPP-B-645
CF	Domestic	DW	All grades	PPP-B-636
CF	Weather-resistant	SW	V3c, W5c, W6c	PPP-B-636
CF	Weather-resistant	DW	V11c, V13c, V15c	PPP-B-636
SF	Domestic		All grades	PPP-B-636
SF	Domestic		200, 275, 350, 375	PPP-B-591
SF	Domestic		275	PPP-B-645
SF	Weather-resistant		V2s, V3s, V4s, W5s, W6s	PPP-B-636
SF	Weather-resistant		V2s	PPP-B-645
SF	Weather-resistant		W5s	PPP-B-645
CF	WWVR	SW	All grades	PPP-B-636
CF	WWVR	DW	All grades	PPP-B-636
CF	Weather-resistant	SW	V3c	MIL-B-43273
CF	WWVR	SW	V3c, WWVR	MIL-B-43273
CF	Domestic	SW	200, 275, 350	MIL-B-17757
CF	Domestic	DW	200, 275	MIL-B-17757
CF	Weather-resistant	SW	V3c, W5c, W6c	MIL-B-17757
CF	WWVR	SW	V3c, WWVR; W5c, WWVR; W6c, WWVR	MIL-B-17757
CF	Weather-resistant	DW	V15c	MIL-B-17757
CF	WWVR	DW	V15c, WWVR	MIL-B-17757
SF	Weather-resistant		V2s, V3s	MIL-B-17757

PACKAGING MATERIALS DISPOSABILITY RATINGS
CANS

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Nil
Specific Gravity, approx	Fiberboard, paperboard & paper: 0.7-1.15; aluminum:2.7; steel: 7.7; asphalt: 1.05
Bulk Density, lb/ft³, approx	NA
Magnetic Susceptibility	Steel: excellent; all other materials: Nil
Biodegradability	Extremely slow
Combustibility	Metal: Nil; all other materials: excellent
Heating Value, Btu/lb, approx	Fiberboard: 7,800; paperboard: 7,800; paper: 7,700; asphalt: 18,000
Shreddability	(1) Excellent
Compactability	(1) Excellent: metals: good: fiberboard
Sulfur, %, approx	Fiberboard: 0.15%; Paperboard: 0.15%; paper 0.15; asphalt: up to 7.5%; metal: Nil

Shipboard Disposal Processing Equipment	Predisposal Processing: Shipboard Processing Feasibility: Ease of Prehandling by Ships' Personnel	Shipboard Processing Feasibility: Relative Ease of Processing	Shipboard Processing Feasibility: Effect(s) on Processing Equipment	Environmental Impact: Atmosphere	Environmental Impact: Marine	Disposability Rating Via: Jettisoning	Disposability Rating Via: Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent	Fiberboard: Good Metal: Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Incinerator	Excellent(2)	Non-metal:Excellent Metal: Unsatisfactory	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent

(1) Depleted aerosol cans spec. No. PPP-C-96-B, type IX must not be compacted, shredded, or incinerated;
Ref: NAVSUP Publ. 4500 CHIL of 1 Jul '73

(2) Feeding unshredded metal components into incinerator should be avoided, unless incinerator is designed to handle such materials.Shredded metal fragments are expected to pass through grates of incinerator into ash pits without adverse operational effects

PACKAGING MATERIALS DISPOSABILITY RATINGS

CANS (Cont)

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
PPP-C-55	Cans, fiberboard & paperboard (with paper & metal ends)	Fiberboard & paperboard; cellulose; adhesive, kraft paper, tin plate; moisture & grease resistant paper caps; anti-corrosion liners such as parchment, aluminum foil, kraft, cellulose acetate polyethylene,	For supply items other than liquids	Nil	
PPP-C-96	Cans, metal, 28 gage & lighter	Metal: aluminum; tin, terne, black plate steel, or combinations thereof; lids: plastic, unidentified; flexible spouts: polyethylene or equivalent; protective coatings, exterior &/or interior as required	Shipment & storage of widerange of products including subsistence items	Nil	Highly detailed specification, 9 types; several types subdivided into classes; includes type IX; pressurized (aerosol) cans
MIL-C-3955	Cans, fiber, spirally wound	Varies depending on type, grade & style; thus: ammo container board, aluminum foil, waterproof duplex kraft, dextrin adhesive, resin adhesive, water resistant adhesive, asphalt	For items requiring physical, water proof, or moisture proof protection	Nil	Single body type for parts less than 10 lb. Telescopic type for parts less than 20 lb
MIL-C-4470	Cans, hermetic sealing, rectangular	Tin or terne plate steel, soldered ends, synthetic rubber seals	Interior cans for use in shipment & storage of equipment & material of moderate weight	Nil	
MIL-C-10464	Cans, hermetic sealing, metal light gage, tear strip type	Aluminum	Packaging of ammunition & pyrotechnic materials	Nil	

PACKAGING MATERIALS DISPOSABILITY RATINGS
CLEANING MATERIALS (ABRASIVE CLEANERS)

Applicable Specifications	Refer to MIL-S-851 & MIL-G-5634 included in attached list of cleaning materials
Chemical Name & Composition	Refer to MIL-S-851 & MIL-G-5634 included in attached list of cleaning materials
Common End Uses	Refer to MIL-S-851 & MIL-G-5634 included in attached list of cleaning materials
Reuse Capability	Limited
Specific Gravity, approx	0.5/1.1
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Nil
Biodegradability	Extremely slow
Combustibility	Readily
Heating Value, Btu/lb, approx	7,500 for MIL-G-5634; nil for MIL-S-851
Shreddability	Material already fragmented
Compactability	Unsatisfactory; substantially noncompactible
Sulfur, %, approx	NA

Predisposal Processing				Environmental Impact		Disposability Rating Via	
Shipboard Disposal Processing Equipment	Shipboard Processing Feasibility					Jettisoning	Storage Aboard Ship for Transfer to Shore Base
	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine		
None	Excellent	NA	NA	NA	Nil(2)	Excellent(2)	Excellent
Compactor	Excellent	(1)	(1)	NA	Nil(2)	Excellent	Excellent
Shredder	Excellent	(1)	(1)	NA	Nil(2)	Excellent	Excellent
Shredder/Compactor	Excellent	(1)	(1)	NA	Nil(2)	Excellent	Excellent
Incinerator	Excellent	Excellent	Nil	Nil	Nil(2)	Excellent	Excellent
Shredder/Incinerator	Excellent	Shredder: see note (1) Incinerator: nil	Shredder: see note (1) Incinerator: nil	Nil	Nil(2)	Excellent	Excellent

(1) Presence of small amounts of used abrasive cleaners in waste materials fed to compactors or incinerators is not expected to have adverse effects. Shredders will handle materials meeting MIL-G-5634. Materials meeting MIL-S-851 should not be fed into shredders.

(2) Negative buoyancy required.

PACKAGING MATERIALS DISPOSABILITY RATINGS

PACKAGING MATERIALS DISPOSABILITY RATINGS
CLEANING MATERIALS (CHLORINATED SOLVENTS)

Applicable specifications	O-T-236(1)	O-T-634(1)
Chemical name	Tetrachloroethylene	Trichloroethylene
Chemical composition	CCl_4	$CHCl=Cl_2$
Specific gravity	1.62	1.47
Flash point, ° F	Nonflammable	Nonflammable
Boiling point, ° F, approx	248	189
Combustibility	Nonflammable	Nonflammable
Biodegradability	Extremely slow	Extremely slow
Toxic hazard(3) Breathing Skin contact, prolonged or repeated Ingestion	Toxic! Use only in well-ventilated area. Exercise suitable precautionary measures to avoid inhalation, contact with skin & eyes, and ingestion.	
Common end use	Vapor degreasing operations	Vapor degreasing operations
Reuse capability	Limited	Limited
Disposability rating Jettisoning Storage aboard ship for transfer to shore base(2)	Unsatisfactory Excellent	Unsatisfactory Excellent

(1) Additional information included in list of cleaning materials.
(2) In accordance with OPNAVINST 5240.3C, drainings of these materials shall be transferred to 55-gallon drums or other suitable containers.
(3) Personnel must handle these materials in strict conformity with instructions given on pages 1-15 through 1-27 of Defense Supply Agency Manual DSAM 4145.2, Vol. 1, "Preservation, Packaging, and Packing of Military Supplies and Equipment, Preservation and Packaging."

PACKAGING MATERIALS DISPOSABILITY RATINGS
CLEANING MATERIAL (CLEANING COMPOUNDS)

Applicable Specifications	Refer to P-C-436, P-C-437, P-C-444, P-C-535 & MIL-C-5543 included in attached list of cleaning materials
Chemical Name & Composition	Refer to P-C-436, P-C-437, P-C-444, P-C-535 & MIL-C-5543 included in attached list of cleaning materials
Common End Uses	Refer to P-C-436, P-C-437, P-C-444, P-C-535 & MIL-C-5543 included in attached list of cleaning materials
Reuse Capability	Refer to P-C-436, P-C-437, P-C-444, P-C-535 & MIL-C-5543 included in attached list of cleaning materials
Specific Gravity, approx	Varies, depending on compositions of individual specifications
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	NA
Biodegradability	NA
Combustibility	Nil
Heating Value, Btu/lb, approx	Nil
Shreddability	NA
Compactability	NA
Sulfur, %, approx	NA

Predisposal Processing				Environmental Impact		Disposability Rating Via	
Shipboard Disposal Processing Equipment	Shipboard Processing Feasibility					Jettisoning(1)	Storage Aboard Ship for Transfer to Shore Base (1)
	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine		
None	Excellent	NA	NA	NA	NA(1)	Unsatisfactory	Excellent
Compactor	NA	NA	NA	NA	NA	NA	NA
Shredder	NA	NA	NA	NA	NA	NA	NA
Shredder/Compactor	NA	NA	NA	NA	NA	NA	NA
Incinerator	NA	NA	NA	NA	NA	NA	NA
Shredder/Incinerator	NA	NA	NA	NA	NA	NA	NA

(1) In accordance with OPNAVINST 6240.3C, drainings of these materials shall be transferred to 55-gallon drums or other suitable containers.

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PACKAGING MATERIALS DISPOSABILITY RATINGS
CLEANING MATERIALS (PETROLEUM PRODUCTS AND MISCELLANEOUS)

Applicable specifications	P-D-680[1]	TT-T-251[1]	MIL-D-16791[1]
Chemical name	Principally refined paraffinic hydrocarbons	Principally refined paraffinic hydrocarbons	Alkyl/aryl polyether alcohols
Chemical composition	A blend of hydrocarbons	A blend of hydrocarbons	Blend of above alcohols
Specific gravity, approx	0.85	0.8	Varies, 1.1 typical
Flash point, ° F	Type I - 100 min Type II - 140 min	Grade A - 100 min Grade B - 125 min	350 min
Combustibility	Excellent	Excellent	Excellent
Biodegradability	Extremely slow	Extremely slow	Slow
Toxic hazard	Minimal, if used in accordance with sound conventional safety practices		Substantially nil
Common end use	Removal of oil & grease	Solvent or thinner for paints, etc	Cleaning agent for rubber, plastics, etc
Reuse capability	Limited	Nil	Limited
Disposability rating Jettisoning Storage aboard ship for transfer to shore base[2]	 Unsatisfactory Excellent	 Unsatisfactory Excellent	 Unsatisfactory Excellent

(1) Additional information included in list of cleaning materials.
(2) In accordance with OPNAVINST 6240.3C, drainings of these materials shall be transferred to 55-gallon drums or other suitable containers.

PACKAGING MATERIALS DISPOSABILITY RATINGS
CLEANING MATERIALS, LIST OF

Applicable Specifications					Remarks
Specification No.	Specification Title	Material, Chemical Composition	Common End Uses	Reuse Capability	
O-T-236	Tetrachloroethylene (perchloroethylene), technical	Tetrachloroethylene, technical grade	Vapor degreasing operations; its higher boiling point permits longer cycle of operation than for trichloroethylene	Limited	Preferably should be used with adequate ventilation; flash point - nonflammable
O-T-634	Trichloroethylene technical	Trichloroethylene, technical grade	Vapor degreasing operations	Limited; less than for tetrachloroethylene	Use only with adequate ventilation; flash point - nonflammable
P-C-436	Cleaning compounds, alkali, boiling vat (soak or hydrosteam)	Synthetic detergents sodium metasilicate, monobasic sodium phosphate, trisodium phosphate, anionic plus nonionic detergents (powdered)	Hot immersion cleaning of ferrous & nonferrous metals	Limited	80% biodegradable; silicate %: not less than 15; phosphate %: 17.7 - 22; alkalinity as Na_2O %: 28 max
P-C-437	Cleaning compound, high-pressure (steam) cleaner	Composition optional; granular; not powdered (also refer to Remarks)	For use in high-pressure steam cleaning	Limited	80% biodegradable; must be free of fatty acid, rosin, soap, starch, abrasives, gritty material, inert fillers, carbonates, bicarbonates & caustic soda
P-C-444	Cleaning compound, solvent, soluble, grease, emulsifying	Composition optional; type I: nonphenolic; type II: phenolic; phenolic materials: 15%-25%; phenol: less than 3%; volatile: less than 10%; flash point, °F of volatile: 110° F min	Removal of stubborn pigmented, drawing, buffing, & polishing compounds & slushing oils by emulsion immersion	Limited	Liquid at room temperature
P-C-535	Cleaning compound, platers, electrocleaning for steel	Organic detergent: 0.4% min; phosphate, as P_2O_5: 5.0% min; silicate, as SiO_2: 10.0-35.0%; impurities, %: 7.5 max; caustic soda, %: remainder (also refer to Remarks)	Preparation of solutions which conduct low voltage current required to stimulate bubbling action necessary for alkaline electrocleaning	Limited	Must be free of fatty acids, rosin, starch, soap, lignite, inert fillers, & excessive dust control agents
P-D-680	Dry cleaning solvent	Petroleum distillate	Removal of oil & grease from metal surfaces by brushing, wiping, spraying, or immersion	Limited	Flash point, °F, min: type I: 100° F; type II: 140° F

PACKAGING MATERIALS DISPOSABILITY RATINGS
CLEANING MATERIALS, LIST OF (Cont)

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
TT-T-291	Thinner, paint, volatile spirits, petroleum spirits	Petroleum distillate: olefins - trace, max; aromatics - 20% max	Solvents or thinners for paints, enamels, varnishes, new synthetics; type I: for use where no restrictions for emissions of solvent into atmosphere; type II: for use where solvent emissions into atmosphere are restricted; uses: similar to P-D-680 but is higher priced	Nil	Two grades for each type; flash point, minimum: grade A - 100° F, grade B - 125° F
MIL-C-5543	Cleaning compound, washing machine, aircraft metal parts	Powdered soap & soap products; alkali metal salts of fatty acids	For hot immersion cleaning operations; removal of asphalt, mineral oil, grease, & road dirt from metal components	Limited	-
MIL-G-5634	Grain, abrasive, soft, for carbon removal	Peach & apricot pits, pecans, & black & English walnut shells; corn cobs; rice hulls; coconut, filbert, & almond shells; chemical composition: principally cellulose & lignin	Abrasive cleaning of metal parts coated with carbon & similar deposits	Limited	-
MIL-C-15074	Corrosion preventive, fingerprint remover	Methanol plus dry cleaning naphtha meeting P-D-680; soap: alkali metal salt of fatty acids; water	Removal of fingerprints, suppression of perspiration, corrosion, & temporary protection of steel surfaces	Nil	Flash point, °F: methanol - 54, P-D-680, type I - 100 min; type II - 140 min
MIL-D-16791	Detergents, general purpose (liquid nonionic)	Water: 0.5% max; active ingredient: 99% min; may be either alkyl aryl polyether alcohol or linear alkyl polyether alcohol where alkyl group is linear primary or secondary alkyl; sulfur, %: 0.2 max; nitrogen, %: 0.1 max; phosphorus, %: 0.1 max	Removal of contaminants from items such as rubber, plastics, canvas, & metallic articles	Limited	Supplier must certify detergent conforms to material requirements; flash point of product: 350° F min
MIL-S-851	Blast cleaning & peening grit & shot	Chilled cast iron; hardened cast steel grit & shot	Blast cleaning & peening; removal scale, rust, dirt, sand from metal surfaces	Limited	Material to be discarded should not be fed into shredders in order to avoid damage to moving components of these units

PACKAGING MATERIALS DISPOSABILITY RATINGS
COATING COMPOUNDS

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	NA
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Nil
Biodegradability	Extremely slow
Combustibility	Excellent
Heating Value, Btu/lb, approx	From 8,000 for some cellulose-type plastics to 18,000 for asphalt
Shreddability	Excellent
Compactability	Good
Sulfur, %, approx	From zero for many materials to 7.5% for some asphalts

Predisposal Processing				Environmental Impact		Disposability Rating Via	
Shipboard Disposal Processing Equipment	Shipboard Processing Feasibility					Jettisoning	Storage Aboard Ship for Transfer to Shore Base
	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine		
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent	Good	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Incinerator	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent

PACKAGING MATERIALS DISPOSABILITY RATINGS
COATING COMPOUNDS

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
MIL-P-149	Plastic coating compound, strippable (hot dipping)	Type I: ethyl cellulose plus solvent, antioxidant & pour point depressant; type II: cellulose acetate butyrate plus solvent, antioxidant & pour point depressant	A strippable protective compound for preservation & packaging of metallic parts made of copper, steel, or aluminum, such as gears, dies, drill bits, bearings, etc	Nil	Usage limits: type I: +10 to 160° F type II: -65 to 160° F & where transparency is required
MIL-T-152	Treatment, moisture-fungus resistant, of communications, electronic, & associated electrical equipment	Refer to specification VV-L-173 below	Specification describes method of treatment by application of moisture & fungus resistant varnish to those assembled communications, electronic, & associated electrical equipments & certain of their component subassemblies, individual parts, solder connections, etc	NA	-
MIL-V-173	Varnish, moisture-fungus resistant (for treatment of communications, electronic, & associated equipment)	Para phenyl-phenol-formaldehyde resin, tung oil, solvent, & alicylanilide or copper-8-quinolinolate; refer to Remarks re solvent	For application via above specification MIL-T-152	Nil	Methanol, benzene, chlorinated hydrocarbons, or other highly toxic solvents shall not be used
MIL-C-3254	Coating-system, bridging, strippable, sprayable	Type / Components: 1 — class 1: sprayable webbing solution; class 2: sprayable, strippable protective plastic; no benzol or chlorinated solvents; 2 — asphalt, gilsonite (optional), petroleum solvent; 3 — paste: aluminum, conforming to type II, class 2, of TT-P-320; vehicle: asphalt, gilsonite (optional), petroleum solvent	Preparation for outdoor storage of items such as artillery pieces, railroad motive power, & large marine engines	Nil	Toxicological data & procedures required to evaluate safety of material shall be furnished by supplier; plastics included; polyvinyls

PACKAGING MATERIALS DISPOSABILITY RATINGS

COATING COMPOUNDS (Cont)

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
MIL-C-6799	Coating, sprayable, strippable, protective, water emulsion	Water emulsions capable of being sprayed & stripped; other components unidentified	Type I, class 1: transparent, strippable, protective covering for bulk acrylic plastic materials or assemblies containing acrylics for items fully covered; type I, class 2: opaque, but otherwise as for type I, class 1; type II, class 1, black: as for type I & as basecoat for type II, class 3 materials; type II, class 2, gray: a contrasting intermediate coating to be applied over type II, class 1, black, basecoat material; type II, class 3, white: topcoat for type II, class 1 materials (combination for application on metallic, painted, & plastic surfaces as entire aircraft, missiles, rockets, transportation vehicles during outdoor storage & overseas deck-loaded shipments; type III, white: single exterior coat for applications described above for combination coating	Nil	-
MIL-P-11520	Preservative coating, rubber: for rubber surfaces	Elastomeric compounds, fillers, & colored pigments in organic solvents; no benzol or chlorinated hydrocarbons permissible; antiozonant: when required	Preservation of rubber items as tires, track blocks, bogie wheels, gaskets, hose, etc exposed to weather in outdoor storage	Nil	-

PACKAGING MATERIALS DISPOSABILITY RATINGS
COATING COMPOUNDS (Cont)

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
MIL-C-16555	Coating compound, strippable, sprayable	% by Weight Component / Type I / Type II Nonvolatile, min: 30 / 34 Volatile solvent, max: 70 / 66 Nonvolatile — % by Weight, min Vinyl resin: - / 50 Vinyl resin + plasticizer: 90 / 78 Pigment: - / 12 Aluminum powder: 2 / - Titanium dioxide: 0.5 / - Blue lead, etc: 2 / - Fire retardants: - / 1.5 Stabilizers: - / 3.0 Pigment in type II shall contain 70% min lead chromate; solvent shall consist of methyl ethyl ketone or methyl ethyl ketone + toluene; small amounts of methyl isobutyl ketone permitted	Strippable, sprayable, protective coating for application on painted or unpainted metal surfaces to seal openings & provide protection while in storage or during shipment	Nil	Color: type I: aluminum; type II, class 1: olive, drab; type II, class 2: Marine Corps green
MIL-C-17504	Coating compound, acrylic, clear	Methyl & ethyl ester polymers & copolymers of acrylic & methacrylic esters modified by not more than 7% chlorinated or other resins dispersed in a hydrocarbon solvent	Coating over pigmented finishes & other surfaces where applicable	Nil	Must be free of any injurious additives or adulterants
MIL-C-23760	Coating, sprayable, strippable, protective, for preservation & packing of weapons systems & components; application of	NA	Detailed requirements & procedures to be followed in application of sprayable, strippable coatings approved under MIL-C-6799 & MIL-C-16555 for protection of painted or unpainted, metallic or plastic surfaces for weapons systems & components	NA	-

PACKAGING MATERIALS DISPOSABILITY RATINGS
COATING COMPOUNDS (Cont)

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
MIL-P-45021	Plastic coating compound, strippable, 120° F (49° C)	Typical: cellulose acetate butyrate; chlorinated biphenyl; polyethylene glycol di-2-ethyl hexanoate; mineral oil; xylol; isopropanol; phenyl salicylate; trilauryl phosphate; di-2-ethyl hexylamine or methyl morpholine; solubilized 10% copper-8-quinolinolate	Application at about 120° F to spare parts containing heat sensitive materials for physical, corrosion, & fungistatic protection; also for coating optical lenses & elements for packaging purposes	Nil	Application only in adequately ventilated areas; skin contact with material should be avoided
MIL-V-13811	Varnish, waterproofing, electrical, ignition	Resin: a copolymer type formed by reaction of a vinyl-type monomer or monomers with a phthalic alkyd resin; aromatic solvent & alkyl solvent: as required; antioxidant, antiskinning agent, & stabilizers: at discretion of supplier; rosin & phenolic resin: nil	Protection of electrical circuits & engine parts of internal combustion engines against moisture & corrosion	Nil	-

PACKAGING MATERIALS DISPOSABILITY RATINGS
CONTAINERS, MISCELLANEOUS (MIL-C-52661 ONLY)

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	Varies from 0.4 for some woods to 7.7 for steel
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Steel: excellent; all other materials: nil
Biodegradability	Extremely slow
Combustibility	(1) Metals: nil; wood: excellent
Heating Value, Btu/lb, approx	(1) Metals: nil; wood: 8,500
Shreddability	(1)
Compactability Unshredded Shredded	(1)
Sulfur, %, approx	NA

Predisposal Processing				Environmental Impact		Disposability Rating Via	
Shipboard Disposal Processing Equipment	Shipboard Processing Feasibility						
	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine	Jettisoning	Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	(1)
Compactor	NA	NA(1)	NA	NA	NA	NA	NA
Shredder	NA	NA(1)	NA	NA	NA	NA	NA
Shredder/Compactor	NA	NA(1)	NA	NA	NA	NA	NA
Incinerator	NA	NA(1)	NA	NA	NA	NA	NA
Shredder/Incinerator	NA	NA(1)	NA	NA	NA	NA	NA

(1) Because of their large size and construction, it is not feasible to process cargo containers which have deteriorated to rejection level, in shipboard shredders, incinerators, or compactors. For disposal of such containers, jettisoning probably is preferable to storage aboard ship for transfer to a shore base for further handling.

PACKAGING MATERIALS DISPOSABILITY RATINGS
CONTAINERS, MISCELLANEOUS (MIL-C-52661 ONLY)

Applicable Specifications					Remarks
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	
MIL-C-52661	Container, cargo	Exterior sides, front wall, roof: steel; interior sides and front wall: plywood, may be fabricated from fiber glass or fiber-glass-coated plywood; hinges: steel; screws: steel; lock nuts: steel; kick plate: steel; threshold plate: steel	Transportation of high density military and quasi-military cargo when security and pilferage are major considerations; for highway, railroad, or water modes of transport either in singly or coupled (tandem) configurations	Excellent, until deteriorated to rejection level	A highly detailed specification with regard to structural requirements; gross weight rating for each 20-foot container in a coupled configuration shall be 15 long tons or 33,600 lbs

PACKAGING MATERIALS DISPOSABILITY RATINGS
CONTAINERS, MISCELLANEOUS (F.S. PPP-P-180 ONLY)

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page; very widely
Common End Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	Varies widely from 0.4 for cork to 7.7 for steel
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Steel: excellent; all other materials: Nil
Biodegradability	Extremely slow
Combustibility	Metal, glass: unsatisfactory; other materials: excellent
Heating Value, Btu/lb, approx	Varies widely, from zero for metals & glass to 20,000 for polyethylene
Shreddability	(1) Excellent
Compactability Unshredded Shredded	(1) Metals, glass, cork: excellent; fiber, plastic film: good; plastic, rigid; rubber: fair
Sulfur, %, approx	Varies widely, from nil for metals & glass up to 0.6% for some plastics or papers

Predisposal Processing (1)				Environmental Impact		Disposability Rating Via (1)	
	Shipboard Processing Feasibility						
Shipboard Disposal Processing Equipment	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine	Jettisoning	Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent	(2)	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent	Excellent (3)	Nil (3)	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent	Excellent (3)	Nil (3)	Nil	Nil	Excellent	Excellent
Incinerator	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent	Excellent (3)	Nil (3)	Nil	Nil	Excellent	Excellent

(1) Depleted containers of potentially hazardous drugs, chemicals, pharmaceuticals, or similar materials must be handled as required for removal of residual contents in accordance with specific instructions for individual materials, before containers are reused, processed in shipboard disposal equipment, jettisoned, or stored aboard ship for transfer to shore base for further handling (Ref: NAVSUP Publ 4500 CHIL of 1 Jul '73).
(2) Relative ease of compaction - metals, glass: excellent; fiber, plastic films: good; plastic, rigid & rubber: fair.
(3) Feeding bundles or large masses of plastic films into shredders should be avoided in order to prevent jamming or clogging of unit.

PACKAGING MATERIALS DISPOSABILITY RATINGS

CONTAINERS MISCELLANEOUS (Cont)

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
PPP-C-185	Containers, packaging, & packing, for drugs, chemicals, & pharmaceuticals	Container Component — Composition: container, proper — glass or plastic, as documented container closures — metal, aluminum, rubber, cork tubes (collapsible) — metal: tin, tin-lead, tin-copper, or aluminum; plastic; as documented tube closures — metal; plastic, rigid cans — tin plate cannisters — fiber, metal, plastic, or fiber ends, as documented pails, proper — steel pails, spouts — polyethylene bags & liners — paper, polyethylene, laminated as specified	Packaging & packing, for drugs, chemicals, and pharmaceuticals	Nil	

PACKAGING MATERIALS DISPOSABILITY RATINGS
CONTAINERS, MISCELLANEOUS (Cont)

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	Varies widely; from 0.4 for wood to 7.7 for steel
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Steel: excellent; all other materials: nil
Biodegradability	Extremely slow
Combustibility	Metals: unsatisfactory; all other materials: excellent
Heating Value, Btu/lb, approx	Varies widely, from zero for metals to 13,500 for polyurethane; wood: 8,500
Shreddability	Refer to notes for details
Compactability	Refer to notes for details
Sulfur, %, approx	Varies widely, from nil for metals up to 0.5% for some plastic formulations

Shipboard Disposal Processing Equipment	Predisposal Processing: Shipboard Processing Feasibility			Environmental Impact		Disposability Rating Via	
	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine	Jettisoning	Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent(1)	Fiberboard: good; wood: excellent(1),(2)	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent(1)	Fiberboard & wood: excellent(1),(2)	Nil	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent(1)	Fiberboard: good; wood: excellent(1),(2),(3)	Nil	Nil	Nil	Excellent	Excellent
Incinerator	Excellent(1)	Excellent(1)	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent(1)	Fiberboard & wood: excellent(1),(3),(4)	Nil	Nil	Nil	Excellent	Excellent

(1) Does not apply to large metal containers (MIL-C-5584 and MIL-C-22443) which cannot be handled readily in shipboard processing equipment. From a practical viewpoint jettisoning probably is preferable to storage aboard ship for disposal of such containers deteriorated to rejection level.
(2) Compactability & shreddability of polyurethane containers (MIL-C-38226) - rigid containers: good; resilient components: fair.
(3) Feeding bundles or large masses of rigid or resilient polyurethane into shredders should be avoided to prevent jamming or clogging of the units
(4) Polyurethane only - shredding: fair to good; incinerability: excellent.

PACKAGING MATERIALS DISPOSABILITY RATINGS
CONTAINERS, MISCELLANEOUS (Cont)

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
PPP-P-1266	Container, thermal, shipping for medical material requiring controlled temperature ranges	Box, fiberboard, meeting PPP-B-636; cellulose; polyurethane foam rigid & elastic, meeting MIL-P-26514; polyurethane	Shipment of medical material requiring controlled temperature ranges	Good	-
PPP-T-495	Tubes, mailing & filing	Tube body: new paper, chipboard; kraft paper, waterproofed kraft paper; all of cellulose; adhesive: unidentified; ends, necks, & screwcaps: metal	For mailing, filing; storage (as for maps & blueprints)	Generally limited to filing or storage reuse	-
MIL-C-5584	Containers, shipping & storage, metal, reusable	Typical: steel, aluminum	Shipping containers for water-vaporproof & physical protection for domestic & overseas shipment & storage	Excellent until deteriorated to rejection level	-
MIL-C-9959	Container, flexible, reusable, water-vaporproof	Wood cleats & veneer; cellulose + lignin; paper & triple corrugated fiberboard; cellulose; adhesives; various, as required	Environmental protection of aircraft engines, mounted or installed on a handling or transportation device	Excellent	-
MIL-C-22443	Containers, modular metal, general specifications for	Aluminum alloys, various; cadmium and/or zinc plated ferrous metal; wood (skids)	Accommodate sizeable electronic components, instruments, guidance, & test equipment, complex weapons, etc	Excellent	-
MIL-C-38226	Containers, polyurethane, rigid or elastic for packaging small engines	Polyurethane; specific composition may vary, depending on supplier	For packaging small engines	Excellent	-
MIL-B-43666	Boxes, shipping, inserts consolidation	Wood cleated plywood, wire bound plywood, fiberboard; double wall fiberboard is wax impregnated adhesives; resins not identified	Modular size shipping boxes for consolidated shipments	Good	-

PACKAGING MATERIALS DISPOSABILITY RATINGS
CRATES, WOOD & METAL

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	Wood: varies with species, 0.4-0.75; steel: 7.7; aluminum: 2.7; polyethylene: 0.92
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Wood, nil; steel; excellent; polyethylene: nil; aluminum: nil
Biodegradability	Extremely slow
Combustibility	Wood: excellent; steel: nil; polyethylene: excellent; aluminum: nil
Heating Value, Btu/lb, approx	Wood: 8,500; Steel: nil; Polyethylene: 20,000; aluminum: nil
Shreddability	Wood & steel: excellent; Polyethylene: fair; aluminum: excellent
Compactability	Wood & steel: excellent; Polyethylene: fair; aluminum: excellent
Sulfur, %, approx	Wood: 0.15%; Steel: nil; polyethylene: nil; aluminum: nil

Predisposal Processing				Environmental Impact		Disposability Rating Via (1)	
Shipboard Disposal Processing Equipment	Shipboard Processing Feasibility						
	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine	Jettisoning	Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent (2) (3)	Excellent (2) (3)	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent (2) (3)	Excellent (2) (3)	Nil	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent (2) (3)	Excellent (2) (3)	Nil	Nil	Nil	Excellent	Excellent
Incinerator	Excellent (2)	Excellent (2)	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent (2) (3)	Excellent (2) (3)	Nil	Nil	Nil	Excellent	Excellent

(1) Applies only to packaging deteriorated to rejection level
(2) Crates must be reduced by ship's personnel to sizes sufficiently small to fit into feed hoppers of processing units
(3) Feeding large bundles or long lengths of wire into compactor or shredder at one time should be avoided in order to prevent interrupting operation of units

PACKAGING MATERIALS DISPOSABILITY RATINGS
CRATES, WOOD & METAL (Cont)

Applicable Specifications					Remarks
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	
PPP-C-650	Crates, wood, open & covered	Wood: cellulose + lignin; paper: cellulose; nails, staples, bolts, nuts, lag bolts, washers, metal strapping: steel; liner: polyethylene	Domestic & overseas shipment of net loads not over 4,000 lb & not requiring protection of closed or fully sheathed crates	Good reuse potential (1)	
MIL-C-104	Crates, wood, lumber & plywood, sheathed, nailed, & bolted	Wood: cellulose + lignin; paper liner: cellulose; nails, bolts: steel: plywood bonding agent: unidentified	Describes method to design crates capable of resisting stresses to which a crate may be subjected	Good reuse potential (1)	Use of wide variety of woods permitted depending on wood group specified
MIL-C-3744	Crates, wood, open, 12,000 - 16,000 lb capacity	Lumber or plywood: cellulose + lignin; plywood bonding agent unidentified	Shipment of items not requiring protection of fully sheathed crate	Good reuse potential (1)	
MIL-C-11133	Crate, wood, open, wirebound	Wood: cellulose + lignin; wire: galvanized, annealed carbon steel	For shipments not exceeding 1,000 lb	Limited reuse potential (1)	
MIL-C-22806	Crates, sheathed, wood, wirebound	Wood & plywood: cellulose + lignin; plywood bonding agent: unidentified; wire: galvanized, annealed carbon steel	For domestic & overseas shipment of equipment not exceeding 5,000 lb	Good reuse potential (1)	
MIL-C-9897	Crate, slotted angle, steel or aluminum	Steel, aluminum	For shipment of light weight airframe components & bulky items	Excellent (1)	
SS-R-501	Roofing Felt	Felt; wood fibers & equivalents	Used in construction of tops of sheathed crates	Poor	

(1) Until deteriorated to rejection level

PACKAGING MATERIALS DISPOSABILITY RATINGS
CUSHIONING MATERIAL: BOUND FIBER

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	Noncritical
Bulk Density, lb/ft^3, approx	Unspecified in PPP-C-1120
Magnetic Susceptibility	Nil
Biodegradability	Extremely slow
Combustibility	Excellent
Heating Value, Btu/lb, approx	8,000
Shreddability	Fair(1)
Compactability	Poor; considerable springback
Sulfur, %, approx	0.2

Predisposal Processing				Environmental Impact		Disposability Rating Via	
Shipboard Disposal Processing Equipment	Shipboard Processing Feasibility						
	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine	Jettisoning(2)	Storage Aboard Ship for Transfer to Shore Base(3)
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent	Poor	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent(1)	Fair(1)	Nil(1)	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent(1)	Poor(1)	Nil(1)	Nil	Nil	Excellent	Excellent
Incinerator	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent(1)	Fair-Excellent(1)	Nil(1)	Nil	Nil	Excellent	Excellent

(1)Bundles or large masses of bound fiber should not be fed at one time into shredders in order to avoid jamming or clogging the units.
(2)Negative buoyancy required.
(3)From a practical viewpoint disposal by jettisoning likely is preferable to storage aboard ship.

PACKAGING MATERIALS DISPOSABILITY RATINGS
CUSHIONING MATERIAL BOUND FIBER

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
PPP-C-1120	Cushioning material, uncompressed bound fiber for packaging	Class A: natural hair filler bound with suitable elastomeric binder (chloroprene, typical); Class B: natural or vegetable fiber, synthetic fiber, binder, hair; any elastomeric material free of starch or protein; insecticide: refer to remarks	General cushioning applications for protection against vibration and impact shocks, molded forms intended for specific articles and are molded to fit contours of the article	Only for occasional returnable items	Insecticide: when natural hair is used in manufacture of cushioning material, the material shall be treated to contain a residual 0.50±0.0% by weight of 2-chloro-1-(2,4, 5-trichlorophenyl) vinyl dimethyl phosphate

PACKAGING MATERIALS DISPOSABILITY RATINGS

CUSHIONING MATERIALS, CELLULAR PLASTICS

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	Varies depending on specific plastic formulations; non-critical
Bulk Density, lb/ft^3 approx	Varies depending on specific plastic formulations 9/30
Magnetic Susceptibility	Nil
Biodegradability	Extremely slow
Combustibility	Excellent
Heating Value, Btu/lb, approx	Varies, depending on plastic 7,800 to 20,000
Shreddability	Films: Excellent (1)
Compactability	Films: Poor-fair; much springback
Sulfur, %, approx	Up to 0.5% depending on individual formulations
Chlorine, %, approx	For polyvinyl chloride only, up to 58%

Shipboard Disposal Processing Equipment	Predisposal Processing — Shipboard Processing Feasibility			Environmental Impact		Disposability Rating Via	
	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine	Jettisoning(3)	Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent	Poor-Fair	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent (1)	Good (1)	Nil (1)	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent (1)	Fair (1)	Nil (1)	Nil	Nil	Excellent	Excellent
Incinerator	Excellent	Excellent (2)	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent (1)	Excellent (1) (2)	Nil (1)	Nil	Nil	Excellent	Excellent

(1) Bundles or large masses of cellular plastics should not be fed at one time into shredders in order to avoid jamming or clogging of units.

(2) Incineration of relatively large amounts of polyvinyl chloride based compositions at any one time aboard ship should be avoided as a precautionary measure. This is not likely to occur aboard ship where plastics constitute about 1% of total waste packaging and PVC is estimated to consist of approximately 30% of total plastic. Incineration is not expected to have any adverse environmental or incinerator operation effects attributable to solution of hydrogen chloride from polyvinyl chloride.

(3) Negative buoyancy required.

PACKAGING MATERIALS DISPOSABILITY RATINGS
CUSHIONING MATERIALS, CELLULAR PLASTICS

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
PPP-C-795	Cushioning material cellular plastic, film (for cushioning & packaging applications)	Composition of plastic unidentified	Protect items from damage due to shock, vibration, concentrated forces, contamination, & abrasion during storage & shipment. Transparent class 1 materials are suitable for use as cushioning inserts within transparent bags & envelopes & permit inspection of contents without opening package	Nil, except for occasional returnable items	-
MIL-C-40010	Cushioning material packaging, polyvinyl chloride, plasticized, cellular	Cellular, plasticized, non-hygroscopic material made of plasticized lead stabilized polyvinyl chloride with fillers, dyes, & pigments as documented. Type I coated with flexible abrasion resistant material; identity of lead stabilizing compound undisclosed.	Protection equipment against shock & vibration	Same as above	-
MIL-L-81013	Plastic film, transparent, flexible, cellular	Composition unspecified: a composite of two sheets, one flat, the other with uniformly distributed bubbles	Protect items from damage due to shock, vibration, concentrated forces, contamination, & abrasion during handling & shipping	Same as above	Type I: heat-sealable; type II: non-heat-sealable

PACKAGING MATERIALS DISPOSABILITY RATINGS
CUSHIONING MATERIAL, CELLULOSIC

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	Non-critical
Bulk Density, lb/ft^3, approx	4
Magnetic Susceptibility	Nil
Biodegradability	Extremely slow
Combustibility	Excellent
Heating Value, Btu/lb, approx	7,500
Shreddability	Excellent (1)
Compactability	Poor, considerable spring back
Sulfur, %, approx	Up to 0.5%

Predisposal Processing				Environmental Impact		Disposability Rating Via	
Shipboard Disposal Processing Equipment	Shipboard Processing Feasibility					Jettisoning(2)	Storage Aboard Ship for Transfer to Shore Base
	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine		
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent	Fair	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent (1)	Good (1)	Nil (1)	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent (1)	Good (1)	Nil (1)	Nil	Nil	Excellent	Excellent
Incinerator	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent (1)	Excellent (1)	Nil (1)	Nil	Nil	Excellent	Excellent

(1) Bundles or large masses of cellulosic cushion materials should not be fed at one time into shredders in order to avoid jamming or clogging of units.
(2) Negative bouyancy required.
(3) From a practical view point disposal by jettisoning probably may be preferable to storage aboard ship.

PACKAGING MATERIALS DISPOSABILITY RATINGS
CUSHIONING MATERIALS, CELLULOSIC

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
PPP-C-843	Cushioning material cellulosic	Any cellulosic type material as specified by procuring agency. Cellulose	Type I: packages & packs enclosing breakable unit containers of liquids. Material intended to absorb liquids from broken container. Type II: packages & packs where moisture absorbent material is not required.	Nil, except for occasional returnable items	Class A: for filling voids in containers Class B: for wrapping material to protect from abrasion
Mil-H-3884	Honeycomb material cushioning, paper	Paper, honeycomb structure. Unbleached kraftfibers - 100% cellulose; Adhesive: water resistant	Primarily for impact energy dissipation for airdrop operations	Nil, except for occasional returnable items	-
Mil-C-23734	Cushioning material cellulosic, treated free flow, tubular	Laminated kraft paper (cellulose). Adhesive: water-resistant; Resins: synthetic	Packaging, cushioning & dunnage applications where a bulk free flowing, non-corrosive material is required to protect fragile equipment from damage effects due to shock & vibration	Nil, except for occasional returnable items	-
PPP-P-291	Paperboard, wrapping & cushioning	100% wood pulp fibers for corrugated or nodule type; solid news or ground wood pulp type for solid molded pulp wood; cellulose & lignin	Cushioning wrapper to immobilize irregular shaped objects; a backing sheet is required if material is used as outer wrapper	Nil, except for occasional returnable items	-
PPP-P-150	Paper waxed, shredded	Cellulosic fibers coated with petroleum wax	Position items in containers; limited shock protection	Nil except for occasional returnable items	Available as long or short shreds

PACKAGING MATERIALS DISPOSABILITY RATINGS
CUSHIONING MATERIAL: FELT

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	Varies widely; noncritical
Bulk Density, lb/ft^3, approx	Varies depending on classification number: from 10 to 47
Magnetic Susceptibility	Nil
Biodegradability	Slow
Combustibility	Excellent
Heating Value, Btu/lb, approx	6,500
Shreddability	Fair(1)
Compactability	Poor, considerable spring back
Sulfur, %, approx	0

Shipboard Disposal Processing Equipment	Predisposal Processing: Shipboard Processing Feasibility: Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Environmental Impact: Atmosphere	Environmental Impact: Marine	Disposability Rating Via: Jettisoning(2)	Disposability Rating Via: Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent	Poor	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent(1)	Fair(1)	Nil(1)	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent(1)	(1)	Nil(1)	Nil	Nil	Excellent	Excellent
Incinerator	Excellent	Excellent	Nil(3)	Nil(3)	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent(1)	Shredder: fair(1) incinerator: excellent	Nil(1),(3)	Nil(3)	Nil	Excellent	Excellent

(1) Bundles or large masses of felt sheet should not be fed at one time into shredders in order to avoid jamming or clogging of the units.
(2) Negative buoyancy required.
(3) When burned, wool gives off an appreciable volume of sulfur dioxide. However, the proportion of wool in the total waste packaging material mix is so small that the volume of sulfur dioxide in the incinerator stack effluent gas is correspondingly low and is expected to have no adverse effect either on the environment or on the operation of the incinerator.

PACKAGING MATERIALS DISPOSABILITY RATINGS

CUSHIONING MATERIAL: FELT

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
C-F-202	Felt sheet (hair) & felt roll (hair)	Cattle hair principal constituent; other animal hair may be used	H-26-S & H-26-R: insulation where temperature will not exceed 120° F for cushioning, padding, packing, & crating of greater than one time use; vibration mountings & dust shields; H-34-S & H-34-R: cushioning, packing, padding, & shielding where moderate strength & abrasion resistance are required. Vibration & shock mounts for long-term operation. Ammo components when class N filter elements; H-43-S & H-43-R: cushioning, packing, padding, & shielding where high strength & abrasion resistance are required. Vibration & shock mounts for long-term operation & moderate loading. Ammo components when class N. Polishing blocks, wheels, pads, wipers, applicators, & filter elements; H-56-S & H-56-R: cushioning, packing, padding, & shielding where unusual strength, hardness, & abrasion resistance are required. Vibration & shock mounts for heavy loading & high frequency. Ammo components when class N. Heavy-duty polishing blocks, wheels, pads, wipers, applicators, & filters	Only for occasional items	-

PACKAGING MATERIALS DISPOSABILITY RATINGS
CUSHIONING MATERIAL: FELT (Cont)

Applicable Specifications					Remarks
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	
C-F-206	Felt sheet: cloth, felt, wool, pressed	Wool: fleece, pulled, noil, reprocessed, or reused, or combinations thereof. Types I, II, & III have highly detailed chemical & physical requirements for individual classifications within each type. Type II felts: wool grades. Class 1: fine Spanish, or equivalent; class 2: Spanish, or equivalent; class 3: Mexican, or equivalent; class 4: coarse Mexican, or equivalent	Refer to attached tables I, II, & III (pages) for suggested uses of various classifications of type I, II, & III felts, respectively	Only for occasional returnable items	-
MIL-F-2312	Felt, hair, or wool: mildew resistant & moisture resistant, treatment for	Felts processed in accordance with this specification are covered by the applicable felt specification C-F-202 or C-F-206; mildew resistance agent: 2,2 methylene bis-(4-chlorophenol) or salicylanilide; moisture resistance agent: wax (hydrocarbon) or a metallic salt-wax compound or emulsion	As for specifications C-F-202 & C-F-206	NA	

PACKAGING MATERIALS DISPOSABILITY RATINGS
CUSHIONING MATERIALS: FELT (Cont)

INTENDED USE

Tables I, II, and III show the suggested application for the various classifications of type I, II, and III felts, respectively.

FELTS

Type I Felts

Type I felts covered by this specification are classified by a code letter consisting of the letter "R" preceded by a numeral to indicate consistency in terms of density (unit weight in pounds per square yard of 1-inch nominal thickness) and followed by a second numeral to indicate the difference in class based on specification requirements and as follows:

Classification	Class	Trade Designation	Classification	Class	Trade Designation
8R	5	Soft pad	16X	1,2,3	Backcheck
9R	1,2,3,4,5	Firm pad		1X,3X	Ball bearing
12R	1,2,3	Extra firm pad	18R	1	Laundry
	3X	Lining			

Note: The letter "X" indicates felt less than 1/8 inch in thickness.

TABLE I. Suggested service applications for type I felts

Classification Number	Suggested Service Applications
18R1	For uses where a hard, high-grade felt possessing long wearing properties is desired.
16R1	For oil retention in installations where the felt is not compressed, for feeding low viscosity or light oil, and where unusual strength and hardness are required. Washers; bushings; wicks; ink rolls & pads; door bumpers; polishing blocks, wheels & pads; grommets; window channels; resilient mountings, antivibration & dampening pads; & parts where wear & resistance to abrasion are required are typical uses.
16R2	For vibration mountings, oil & grease shields, & the same general purposes as 16R1 where a felt of slightly lower quality is satisfactory.
16R3	For ammunition components. For aircraft applications: between rocker arm covers of engines, ring coolings, radio cushion strips, retaining & feeding oil under difficult conditions, washers & bushings.
12R1, 12R2 12R3	For dust shields, wipers, grease retainer washers, wicks, vibration mountings, & uses where a resilient felt is required.
9R1, 9R2 9R3	For grease & oil retention where the felt is confined & compressed in assembly. Also recommended for dust shields under less severe operating conditions where 12R1, 12R2, & 12R3 are not required.

PACKAGING MATERIALS DISPOSABILITY RATINGS
CUSHIONING MATERIAL: FELT (Cont)

TABLE I. (Cont)

Classification Number	Suggested Service Applications
9R4	For sound deadening, chassis strips, spacers, dust shields, pedal pads, dash liners, & for mechanical purposes where abrasion & wear are not important factors.
8R5	For packing or padding when held in place between other materials. This grade should not be used for mechanical purposes.
16R1X	For ball & roller bearing oil retainer washers & small dust excluding washers. Also for mechanical purposes where an accurate, thin, smooth, high-grade felt is required.
16R3X	For the same general uses as 16R1X but in installations where tolerances & length of life are not as important. Also for thin cut parts such as gaskets & liners.
12R3X	For antisqueak strips & for lining when cemented to fiberboard or metal panels.

Type II Felts

Type II felts covered by this specification are classified by a code letter consisting of the letter "S" preceded by a numeral to indicate consistency in terms of density (unit weight in pounds per square yard of 1-inch nominal thickness) and followed by a second numeral to indicate class based on specification requirements and as follows:

Classification	Class	Trade Designation	Classification	Class	Trade Designation
32S	1 to 4	Extra hard	16S	1 to 4	Soft
26S	1 to 4	Hard	12S	1 to 4	Extra soft
20S	1 to 4	Medium			

TABLE IA Suggested service applications for type II felts

Classification	Qualities	Service Application
32S extra hard	32 S 1 fine 32 S 2 medium fine 32 S 3 medium coarse 32 S 4 coarse	For use as extra hard-density polishing wheels & buffs in dental, jewelry, glass, & lapidary polishing; also hard washers, bumpers, & casters.
26S hard	26 S 1 fine 26 S 2 medium fine 26 S 3 medium coarse 26 S 4 coarse	For use as hard-density polishing wheels for glass sheet, glassware, ophthalmic lens polishing, metal & metallographic polishing, wood polishing & furniture rubbing; also for block cutters, print rolls, cash carrier heads, points for making pens, casters, boot & shoe soles, artificial limbs.
20S medium	20 S 1 fine 20 S 2 medium fine 20 S 3 medium coarse 20 S 4 coarse	For use as medium hard-density polishing wheels & buffs for polishing lenses, mirrors & glass, marble & granite; also for fluid transfer rolls, ink rolls (securing), furniture rubbing, rough metal polishing, metal wiping, drilled wicks, bearing seal washers, stamp pads, cushioning under sandpaper.
16S soft	16 S 1 fine 16 S 2 medium fine 16 S 3 medium coarse 16 S 4 coarse	For use as medium-density polishing wheels & buffs for precious metal & plastic polishing, rough optical polishing, metal wiping, drum beaters; also drilled wicks, bearing seals, shoe rolls (shank), fluid transfer rolls, oil & fluid wicks, grease & oil retaining washers, ink rollers, vibration & shock mountings, bumpers, plugs, glass channels.
12S extra soft	12 S 1 fine 12 S 2 medium fine 12 S 3 medium coarse 12 S 4 coarse	For use as soft-density polishing wheels & buffs for polishing plastic, polishing & wiping brass; also for piano wedge, surgical pads, punched wicks, dampeners, absorbent pads, oil & fluid retainers, fluid transfer rolls, bearing seals, washers, wicks, shim & spacer pads, shoe insoles, dust shields, antivibration pad.

Type III Felts

Type III felts covered by this specification are classified by a code letter consisting of the letter "A" preceded by a numeral to indicate difference in commercial designation & followed by a second numeral to indicate the color class based on specification requirements and as follows:

Classification	Class	Trade Designation	Classification	Class	Trade Designation
11A	1,2	Coat front	6A	1	Chevron backing, auto flats, & face mask
10A	1,2	Lining; lining, shoe tongue	5A	1	Orthopedic truss & athletic padding
9A	2	Lining	4A	1	Surgical
8A	1	Undercollar, face mask	3A	2	Midsole
7A	1	Chevron facing, cap			

CUSHIONING MATERIAL; FELT (Cont)

TABLE III. Suggested service applications for type III felts

Coat front felt	For use in fronts of coats to give required fullness & drape to outer fabrics.
Lining felt	For use as a lining material in outer wear garments.
Lining, shoe tongue felt	For use as a lining on inside of the shoe tongue, generally white in color. Backing for household objects to prevent scratching or marking furniture.
Chevron, face mask, hat body, undercollar felt	For use in garment decoration, background for embroidered designed hat bodies, undercollar cloth, military insignia.
Orthopedic, truss & athletic padding felt	For use as padding on orthopedic & truss appliances, athletic equipment padding.
Surgical felt	This type of felt can be pulled down in layers to graduated thicknesses needed for medical requirements.
Midsole	For use in footwear as lining or inserts.

PACKAGING MATERIALS DISPOSABILITY RATINGS
CUSHIONING MATERIALS, FIBER GLASS

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	2.3; non-critical
Bulk Density, lb/ft^3, approx	2/10
Magnetic Susceptibility	Nil
Biodegradability	Nil
Combustibility	Nil
Heating Value, Btu/lb, approx	Nil
Shreddability	Good (2)
Compactability	Poor; considerable springback
Sulfur, %, approx	Zero

Predisposal Processing				Environmental Impact		Disposability Rating Via	
	Shipboard Processing Feasibility						
Shipboard Disposal Processing Equipment	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine	Jettisoning	Storage Aboard Ship for Transfer to Shore Base
None	Excellent(1)	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent(1)	Poor	Nil	NA	Nil	Excellent	Excellent
Shredder	Excellent(1),(2)	Good(2)	Nil	NA	Nil	Excellent	Excellent
Shredder/Compactor	Excellent(1),(2)	Fair(2)	Nil(2)	NA	Nil	Excellent	Excellent
Incinerator	Excellent(1)	Excellent(3)	Nil	NA	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent(1),(2)	Excellent(2)(3)	Nil(?)	NA	Nil	Excellent	Excellent

(1) Precaution: Personnel who handle fiber glass for an extended period and permit the material to come into intimate contact with the skin, may experience considerable skin irritation. They also should avoid breathing dust from the material. Suitable protective measures should be taken to minimize these potential hazards.

(2) Feeding bundles or large masses of fiber glass at one time into shredders should be avoided

(3) Fiber glass is non-combustible. It melts at about 1300° F, well below normal operating temperatures prevailing in incinerators, and would pass through incinerator grates into ash pits. Only traces of molten glass maybe expected to spatter on acid refractory linings with no significant adverse effects. However, feeding large quantities of fiber glass at any one time into incinerators should be avoided.

PACKAGING MATERIALS DISPOSABILITY RATINGS
CUSHIONING MATERIALS, FIBER GLASS

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
MIL-C-17435	Cushioning materia.. fibrous glass	Glass; usually a sodium-calcium silicate; type II coated with unidentified elastomer to prevent dusting	Protection of packaged or installed equipment against shock and vibration	Only for occasional returnable items	

PACKAGING MATERIALS DISPOSABILITY RATINGS
CUSHIONING MATERIALS, FOAMS

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	Varies widely depending on composition; not critical
Bulk Density, lb/ft^3, approx	Varies widely depending on composition; 0.5 to 2.0
Magnetic Susceptibility	Nil
Biodegradability	Extremely slow
Combustibility	Excellent
Heating Value, Btu/lb, approx	12,000/20,000, depending on individual plastics & formulation.
Shreddability	Fair (1)
Compactability	Poor; considerable springback
Sulfur, %, approx	Up to 0.5%

Shipboard Disposal Processing Equipment	Predisposal Processing: Shipboard Processing Feasibility: Ease of Prehandling by Ships' Personnel	Predisposal Processing: Shipboard Processing Feasibility: Relative Ease of Processing	Predisposal Processing: Shipboard Processing Feasibility: Effect(s) on Processing Equipment	Environmental Impact: Atmosphere	Environmental Impact: Marine	Disposability Rating Via: Jettisoning (2)	Disposability Rating Via: Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent	Poor	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent (1)	Fair (1)	Nil(1)	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent (1)	Poor (1)	Nil(1)	Nil	Nil	Excellent	Excellent
Incinerator	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent (1)	Shredder: Fair (1) Incinerator: Excellent	Nil(1)	Nil	Nil	Excellent	Excellent

(1) Bundles or large masses of foams, especially sheet form, should not be fed at one time into shredders in order to avoid jamming or clogging of the units.
(2) Negative buoyancy required.

PACKAGING MATERIALS DISPOSABILITY RATINGS
CUSHIONING MATERIALS, FOAMS

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
PPP-C-1797	Cushioning material, resilient, low density, unicellular polypropylene foam	Polypropylene (hydrocarbon) plus non-flammable, non-explosive blowing agent; no fungicide nor toxic material	For use at temperatures -54°C to 71°C protective cushioned wrap for low density items; thermal insulator; surface protection for high density items for surface protection of optical lenses, equipment with critical surfaces, electrical & electronic equipment, glassware, ceramics, magnetic tape rolls	Only for occasional returnable items	Foam can be laminated to paper, paper board, plastics, textiles, etc. Non-dusting & non-linting
Mil-R-6130	Rubber, cellular, chemically blown.	Rubber free of cemented bonded shredded, or reprocessed cellular rubber; Grade A: natural rubber not permitted; Grades B & C: composition is unrestricted. To be packed with fabric cement, etc., when & as specified; blown with sodium bicarbonate or nitrogen; grades A & C may or may not have skin	Type I (open cell): shock absorbing cushions for mounting radio apparatus & aircraft instruments, in crash pads & other uses requiring a material capable of absorbing shock & damping vibrations. Type II (closed cell): flotation gear (skin or rind form only), expansion joint fillers, gaskets, & shock pads where water repellent qualities are desired	Only for occasional returnable items	Three grades Grade A: resistance to oil & flame required; Grade B: resistance to oil not required; Grade C: low temperature resistance but not oil resistance, is required
Mil-P-19644	Plastic Foam, molded, polystyrene (expanded bead or pellet type)	Polystyrene (hydrocarbon)	Finished shapes for use where light weight, medium crushing strength, durability, resistance to weathering & possible contact with oily materials are required. For use at temperatures -60 to 165°F	Only for occasional returnable items	May or may not be fire retardee or oil resistant
Mil-P-26514	Polyurethane foam, rigid or elastic, for packaging	Polyurethane	Packaging medical materials, specimens, biologicals	Only for occasional returnable items	-
Mil-C-46842	Cushioning material unicellular, polyethylene foam (for packaging)	Polyethylene (hydrocarbon)	Cushioning & packaging applications as a shock absorption and vibrations damping medium; for use at temperature ranges -65 to 165°F	Only for occasional returnable items	-

PACKAGING MATERIALS DISPOSABILITY RATINGS
CUSHIONING MATERIALS, FOAM

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
Mil-C-81823	Cushioning material, sheet form, low density, unicellular, polypropylene foam	Polypropylene	Cushioning & packaging applications, in thin sections where surface protection, flexibility & resiliency are needed for optical lenses, equipment with critical surfaces, electrical & electronic equipment, ceramics instruments, etc.	Only for occasional returnable items	-

PACKAGING MATERIALS DISPOSABILITY RATINGS
CUSHION MATERIALS, RESILIENT

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End-Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	Varies widely depending on composition, not critical
Bulk Density, lb/ft^3, approx	Refer to next page under "Remarks"
Magnetic Susceptibility	Nil
Biodegradability	Extremely slow
Combustibility	Excellent
Heating Value, Btu/lb, approx	Varies widely depending on specific composition 7,500/18,000
Shreddability	Fair (1)
Compactability	Poor; considerable springback
Sulfur, %, approx	Up to 0.5%

Shipboard Disposal Processing Equipment	Predisposal Processing — Shipboard Processing Feasibility: Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Environmental Impact: Atmosphere	Environmental Impact: Marine	Disposability Rating Via: Jettisoning(2)	Disposability Rating Via: Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent	Poor	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent (1)	Fair (1)	Nil (1)	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent (1)	Poor (1)	Nil (1)	Nil	Nil	Excellent	Excellent
Incinerator	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent (1)	Shredder: Fair (1) Incinerator: Excellent	Nil (1)	Nil	Nil	Excellent	Excellent

(1) Bundles or large masses of resilient cushioning materials should not be fed at one time into shredders in order to avoid jamming or clogging the units.

(2) Negative buoyancy required.

PACKAGING MATERIALS DISPOSABILITY RATINGS
CUSHIONING MATERIALS, RESILIENT

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
PPP-C-850	Cushioning material polys[illegible]ne, expanded, resilient (for packaging uses)	Expanded polymers or copolymers of polystyrene (hydrocarbon) shall contain no free sulfur	Cushion material within packages to protect items from damage due to shock, vibration, abrasions, and concentrated forces during handling & shipment, where a high degree of energy absorption is required; provide temperature insulation; useful temperature range: -65 to 165°F	Only for occasional returnable items	Non-abrasive, fungus & mold resistant typical bulking densities in lb/ft^3: Class 1 0.4 - 0.8 Class 2 0.6 - 0.9 Class 3 0.9 - 1.8 Class 4 0.8 - 1.2
Mil-P-13607	Padding materials, resilient (for packaging of ammunition)	Of such materials & by such processes as to assure compliance with spec. Examples of previously specified compositions: Wool felt (wool & cotton blend) Classifications: SR5 & 12R3 Spec. C-F-206; Hair felt, type 4, Class 2, Spec. C-F-202	Packaging material inside waterproof ammunition containers; intended to be fabricated into circular or square pads to furnish required tolerance take-up within containers	Only for occasional returnable items	Material shall not tarnish or corrode brass, steel, aluminum, or zinc; shall be compatible with enamel & phenolic varnish. Bulking density, lb/ft^3, 18 typical
Mil-C-26861	Cushioning material, resilient type, general	Any resilient material complying with specific requirements; qualified materials usually are composed of either interlocking or bonded fibers or an elastomeric material	For use within packages to protect equipment from shocks or impacts incurred during shipment and handling	Only for occasional returnable items	Materials procured under this spec. are not used in dunnage or in other areas where full value of their cushioning ability is not realized; bulking density to be specified by procuring agency

PACKAGING MATERIALS DISPOSABILITY RATINGS
CUSHIONING MATERIAL, WOOD, BOARD, AND MISCELLANEOUS

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	Noncritical; wood: 0.4/0.75; fiberboard: 0.7/1.15
Bulk Density, lb/ft^3, approx	Excelsior: 0.15/1.0; fiberboard (MIL-Y-[illegible]): not more than 20
Magnetic Susceptibility	Nil
Biodegradability	Extremely slow
Combustibility	Excellent
Heating Value, Btu/lb, approx	Excelsior: 8,500; fiberboard: 7,800; wood: 8,500
Shreddability	Excelsior & fiberboard: excellent; wood: excellent
Compactability	Excelsior, composition, & fiberboard: fair/excellent
Sulfur, %, approx	0.15

Predisposal Processing							
Shipboard Disposal Processing Equipment	Shipboard Processing Feasibility			Environmental Impact		Disposability Rating Via	
	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine	Jettisoning(1)	Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent	Excelsior: fair; fiberboard: good; wood: excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent	Excelsior: good; fiberboard: good; wood: excellent	Nil	Nil	Nil	Excellent	Excellent
Incinerator	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent

(1)Negative buoyancy required.

PACKAGING MATERIALS DISPOSABILITY RATINGS
CUSHIONING MATERIAL, WOOD, BOARD, AND MISCELLANEOUS

Applicable Specifications					Remarks
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	
PPP-C-911	Excelsior, wood, fabricated pads & bulk form	Wood (cellulose + lignin)	Package cushioning, stuffing for cushions, seats, & mattresses; lighter grades for more fragile items	Only for occasional returnable items	-
MIL-B-3406	Board, composition, water-resistant, solid (for filler or cushioning pads)	Composition: wood, water resistant (cellulose + lignin)	Designed for cutting into filler & cushioning pads; for use where water-resistant material is required & where resistance to compression is more important than resilience, e.g., in exterior shipping containers for ammunition other than small arms ammunition; not intended for container construction	Only for occasional returnable items	-
MIL-F-26862	Fiberboard, solid, noncorrosive, fungi-resistant, for interior blocking operations	Single & multiply fiberboard, fiberboard chemical pulp, clean waste generated & foregoing plus additives as required; fiberboard: cellulose; fungicide: unidentified	Interior cushioning & blocking	Only for occasional returnable items	-

PACKAGING MATERIALS DISPOSABILITY RATINGS
DESICCANTS

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	NA
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Nil
Biodegradability	Desiccant: nil; desiccant container: extremely slow
Combustibility	Desiccant is noncombustible; desiccant container is combustible
Heating Value, Btu/lb, approx	Desiccant: nil; containers other than glass: 7,500
Shreddability	See note (1)
Compactability	Excellent
Sulfur, %, approx	Varies from zero for some desiccants to up to 24% for calcium sulfate anhydrous

Shipboard Disposal Processing Equipment	Predisposal Processing — Shipboard Processing Feasibility			Environmental Impact		Disposability Rating Via	
	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine	Jettisoning(2)	Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder	Note (1)	Unsatisfactory(1)	Note (1)	NA	NA	NA	NA
Shredder/Compactor	Note (1)	Unsatisfactory(1)	Note (1)	NA	NA	NA	NA
Incinerator	Note (1)	Unsatisfactory(1)	Note (1)	NA	NA	NA	NA
Shredder/Incinerator	Note (1)	Unsatisfactory(1)	Note (1)	NA	NA	NA	NA

(1) Spent or "dead" desiccant no longer suitable for regeneration requires no shipboard processing prior to disposal. Occasionally it may be helpful to compact it with other waste materials prior to disposal. Processing it in shredders or incinerators offers no advantage and could be harmful; therefore rated unsatisfactory.

(2) Wherever feasible, disposal by jettisoning likely is preferable to storage aboard ship for transfer to a shore base for eventual disposal.

PACKAGING MATERIALS DISPOSABILITY RATINGS
DESICCANTS

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
MIL-D-3464	Desiccants, activated, bagged, packaging use & static dehumidification	Silica gel (silicon dioxide)	Maintain moisture free atmosphere in packages	Nil	
MIL-D-3716	Desiccants, activated for dynamic dehumidification	Desiccant composition not specified but may be composed of: alumina; calcium sulfate; anhydrous; clay; molecular sieves; silica gel; all of which have been activated to adsorb water	Types I & II: for use in mechanical dehumidification machines of the regenerative type Type IV: for use in indicator cards of humiplugs where an approximate indication of relative humidity is required	Nil	Type I - large particle size: Grade H - high adsorption capacity Grade M - medium adsorption capacity Grade L - low adsorption capacity Type II - medium particle size: Grades H & M Type IV - medium particle size with a humidity indicator: Grade H
MIL-STD-1427	Activated desiccants	A presentation of nomenclature, symbols, physical & chemical properties & requirements, military & typical commercial uses, directions for use, packaging data, labeling, storage information & shelf life of military activated desiccants		NA	

PACKAGING MATERIALS DISPOSABILITY RATINGS
DRUMS, PAILS, METAL

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Excellent until deteriorated to rejection levels
Specific Gravity, approx	Steel: 7.7; aluminum: 2.7
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Steel: excellent; aluminum: nil
Biodegradability	Extremely slow
Combustibility	Nil
Heating Value, Btu/lb, approx	Nil
Shreddability	Excellent
Compactability Unshredded Shredded	Varies, dependent on size & gage Excellent
Sulfur, %, approx	Metals & polyethylene: zero; rubber: 2-4

Predisposal Processing(1)				Environmental Impact		Disposability Rating(1) via	
	Shipboard Processing Feasibility						
Shipboard Disposal Processing Equipment	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine	Jettisoning(4)	Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent(2)	Excellent(2)	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent(2)	Excellent(2)	Nil	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent(2)	Excellent(2)	Nil	Nil	Nil	Excellent	Excellent
Incinerator(5)	NA	NA	NA	NA	NA	NA	NA
Shredder/Incinerator	Excellent(2)	Excellent(2),(3)	Nil(3)	Nil	Nil	Excellent	Excellent

(1) Depleted containers of potentially hazardous materials must be handled as required for removal of residual contents in accordance with specific instructions for individual materials, before containers are reused, processed in shipboard disposal equipment, jettisoned, or stored aboard ship for transfer to shore base for further handling. Ref: NAVSUP Publ 4500 CHIL, 1 July 1973.
(2) Applies only to small pails which fit into feed hoppers of shipboard compactors and/or shredders; unsatisfactory for larger containers.
(3) It is assumed that shredded steel will pass readily through grates of incinerators into ash pits without adverse effects on the units. Aluminum will melt at incinerator operating temperatures & will pass through grates into ash pit without adverse operational effects.
(4) From a practical viewpoint, disposal of drums no longer reusable likely can be best handled by jettisoning.
(5) It is not expected that rejected containers will be fed into incinerators without preshredding.

PACKAGING MATERIALS DISPOSABILITY RATINGS
DRUMS, PAILS, METAL

Applicable Specifications						
Specification No.	Specification Title	Material Chemical Composition			Common End Uses	Reuse Capability	Remarks
		Type	DOT	Composition			
PPP-D-700	Drums, shipping & storage, 55 gallons (for acids & corrosive liquids)	I II III	5A 5C 5D	unlined steel corrosion resistant steel lined steel	Shipment & storage of acids & other corrosive liquids	Excellent(1)	See note (2); prior to first shipment supplier shall submit satisfactory evidence that drums meet applicable Dept. of Transportation applicable specifications
PPP-D-705	Drums, metal, shipping, steel (12-55 gallons)	Steel			General purpose shipment, e.g., for grease	Excellent(1)	See note (2)
PPP-D-711	Drums, metal, shipping, steel, lightweight, 55 gallons	Steel			Shipment of solidified products or powdered or granular (nonregulatory), not subject to ICC regulations	Excellent(1)	See note (2)
PPP-D-729	Drums, metal, 55 gallons (for shipment of noncorrosive material)	Drum: steel; gasket: rubber			Shipment of noncorrosive materials, e.g., fuels, lubricants, etc	Excellent(1)	See note (2)
PPP-P-704	Pails, metal (shipping, steel, 1-12 gallons)	Pail: steel; spout: polyethylene			Shipment of liquid, powdered, granular, flaked, or semi-liquid products	Excellent(1)	See note (2)
PPP-D-001152	Drums, steel, 55 gallons, 24 gage, reinforced	Steel			Shipment of noncorrosive materials	Excellent(1)	See note (2)
MIL-D-6054	Drum, metal, shipping & storage	Steel			Exterior shipping containers	Excellent(1)	See note (2)
MIL-D-6665	Drum, metal, reusable, shipping & storage (capacity 88-510 cubic inches)	Aluminum, steel			Reusable interior & exterior shipping containers	Excellent(1)	See note (2)
PPP-P-123	Pails, metal, polyethylene liner	Steel, polyethylene			Shipment of liquids, powders, & pastes	Excellent(1)	See note (2)
PPP-D-732	Drums, steel, reconditioned, for noncorrosive materials	Steel			Shipment of noncorrosive materials	Excellent(1)	See note (2)
PPP-D-736	Drums, steel, for shipment of phosphorus, dry or in water	Steel			Shipment of phosphorus	Excellent(1)	See note (2)

(1) Only until packaging has deteriorated to rejection level.

(2) Depleted containers of potentially hazardous materials must be handled as required for removal of residual contents in accordance with specific instructions for individual materials, before containers are reused, processed in shipboard disposal equipment, jettisoned, or stowed aboard ship for transfer to shore base for further handling. Ref: NAVSUP Publ 4500 CHIL of 1 July 1973.

PACKAGING MATERIALS DISPOSABILITY RATINGS
DRUMS, PAILS, METAL (Cont)

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
MIL-D-4303	Drums, aluminum, 55 gallons	Aluminum	General shipments	Excellent(1)	See note (2)
MIL-D-195	Drums, steel, calcium carbide	Steel	Shipment of calcium carbide	Excellent(1)	See note (2)

PACKAGING MATERIALS DISPOSABILITY RATINGS
DRUMS, FIBER

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Good until deteriorated to rejection level
Specific Gravity, approx	Fiberboard: 0.7/1.15; steel: 7.7; wood: 0.4/0.75;
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Fiberboard, paperboard, wood, plywood: Nil; steel: excellent
Biodegradability	Extremely slow
Combustibility	Excellent except for metal components
Heating Value, Btu/lb, approx	7,800 approx. for other than metals; metals: zero
Shreddability	Excellent
Compactability	Good: some spring back
Sulfur, %, approx	Steel: zero; other: 0.15%

Shipboard Disposal Processing Equipment	Predisposal Processing: Shipboard Processing Feasibility: Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Environmental Impact: Atmosphere	Marine	Disposability Rating Via: Jettisoning	Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent (1)	Good	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent (1)	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent (1)	Good	Nil	Nil	Nil	Excellent	Excellent
Incinerator	Excellent (1)	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent (1)	Excellent	Nil	Nil	Nil	Excellent	Excellent

(1) Assumes that rejected drums can be readily reduced by ship's force to sizes small enough to fit into feed hoppers of processing units

PACKAGING MATERIALS DISPOSABILITY RATINGS
DRUMS; FIBER

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
PPP-D-723	Drums, fiber	Fiberboard sidewalls: cellulose; ends: steel, low carbon, open hearth, cold rolled; wood: cellulose + lignin; plywood: cellulose + lignin; paperboard: cellulose; adhesive: unidentified; thread: natural or synthetic; sizing: rosin, shellac, or lacquer on outer wall	Domestic, normal overseas & military overseas shipment	Good until deteriorated to rejection level	-

PACKAGING MATERIALS DISPOSABILITY RATINGS

DRUMS, PLASTIC

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Good, until deteriorated to rejection level
Specific Gravity, approx	0.92
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Nil
Biodegradability	Extremely slow
Combustibility	Excellent
Heating Value, Btu/lb, approx	20,000
Shreddability	Excellent
Compactability Unshredded Shredded	 Fair(1) Good(2)
Sulfur, %, approx	Less than 0.1%

Predisposal Processing				Environmental Impact		Disposability Rating Via	
	Shipboard Processing Feasibility						
Shipboard Disposal Processing Equipment	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine	Jettisoning	Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent(3)	Fair(1)	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent(3)	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent(3)	Good (3)	Nil	Nil	Nil	Excellent	Excellent
Incinerator	Excellent(3)	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent(3)	Excellent	Nil	Nil	Nil	Excellent	Excellent

(1) Rigid, plastic containers have considerable "springback".
(2) Shredded, plastic containers have some "springback".
(3) If they are to be processed aboard ship, drums deteriorated to rejection levels will have to be reduced in size by ship's personnel in order to fit into feed hoppers of processing units.

PACKAGING MATERIALS DISPOSABILITY RATINGS

DRUMS, PLASTIC

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
MIL-D-40030	Drums, plastic molded polyethylene	Polyethylene; also may contain 4-6% polyisobutylene or saturated butyl rubber	Container for liquids, powders, or pastes; many chemicals; not for use with strong oxidizing liquids or aliphatic or aromatic hydrocarbons	Good, until deteriorated to rejection level	

PACKAGING MATERIALS DISPOSABILITY RATINGS

GASKET MATERIALS

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	Varies, depending on component: from 0.4 for cork to 1.3 for synthetic rubber & 2.5 for asbestos
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Nil
Biodegradability	Extremely slow
Combustibility	Excellent
Heating Value, Btu/lb, approx	Varies depending on composition. Range: from 7,000 for cork to 20,000 for polyethylene
Shreddability	Wool felt: fair(1); all others: excellent
Compactability	Rubber sponge: poor; wool felt: fair(1); cloth: fair-good(1); all others: good
Sulfur, %, approx	Varies depending on composition. Cork: 0.15%; Rubber, natural: 2-4; Rubber, synthetic: 2; cloth: up to 1.5%; polyethylene: zero

Predisposal Processing				Environmental Impact		Disposability Rating Via	
Shipboard Disposal Processing Equipment	Shipboard Processing Feasibility						
	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine	Jettisoning(3)	Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent	Poor/good(2)	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent	Fair(1)	Nil(1)	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent	Fair/good(1)	Nil(1)	Nil	Nil	Excellent	Excellent
Incinerator	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent	Shredder: fair(1) Incinerator: excellent	Nil(1)	Nil	Nil	Excellent	Excellent

(1) Large bundles of wool felt or cloth should not be fed at one time into shredders in order to avoid jamming or clogging of the units.
(2) Varies, depending on component.
(3) Negative buoyancy required.

PACKAGING MATERIALS DISPOSABILITY RATINGS

GASKET MATERIALS

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
MIL-G-432	Gaskets, synthetic rubber (for fuel & lubricant containers & accessories)	Rubber, synthetic	Fuels & lubricants containers & accessories	Nil	
MIL-G-6841	Tape & sheet, adhesive, rubber & cork composition	Backing is a mixture of cork & vulcanized scorched rubber on print cloth. Cloth is coated with synthetic or natural rubber base adhesive over which a sized holland cloth or polyethylene sheeting is applied	Seal & packing for installation of aircraft windshields, panels, & windows	Nil	
MIL-G-12803	Gasket materials, non-metallic	Type I: asbestos or other inorganic fibers; Type II: cork; Type III: cellulose or other organic fibers, untreated and treated	Type I: heavy duty bolted or threaded joints such as steam & water pipe fitting & manifold connections; for temperatures up to 500°F Type II: mating rough or irregular parts such as glass, light stampings, unfinished castings, or sealing at lowest cost where low temperatures &/or pressures prevail Type III untreated: spacers, dust barriers, splash seals where breathing & wicking are not objectionable; treated: machined or reasonable uniform flanges where adequate bolt pressures can be applied; relative firmness & high tensile strength permit use of thin gaskets to allow good alignment of covers & connected parts	Nil	
MIL-G-13210	Gaskets, rubber	Rubber; natural or synthetic	Gas tight connections in gas mask canisters	Nil	
MIL-G-20241	Gasket material, wool felt, impregnated, adhesive, pressure-sensitive	Wool felt; other component unidentified	For use in joints of non-watertight & watertight ventilation ducts, and as a fraying or insulating material between dissimilar metals	Nil	

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PACKAGING MATERIALS DISPOSABILITY RATINGS

INDICATORS

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	Varies widely among components - Aluminum: 2.7; Brass: 8.4; Rubber: 1.3; Paper: 0.7 to 1.15
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Nil
Biodegradability	Extremely slow
Combustibility	Metal & cobaltous chloride: Nil; other components: excellent
Heating Value, Btu/lb, approx	Components other than metal & cobaltous chloride: vary widely - 7,700/20,000
Shreddability	MIL-I-26860: Unsatisfactory; MS-20003: Excellent
Compactability	MIL-I-26860: Good; MS-20003: Good
Sulfur, %, approx	Metal & cobaltous chloride: Nil; other components: up to as much as 6% for some components of rubber gaskets

Predisposal Processing				Environmental Impact		Disposability Rating Via	
	Shipboard Processing Feasibility						
Shipboard Disposal Processing Equipment	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine	Jettisoning	Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent	Good	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent(1)	Excellent(1)	Nil	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent(1)	Excellent(1)	Nil	Nil	Nil	Excellent	Excellent
Incinerator	Excellent(1)	Excellent(1)	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent(1)	Excellent(1)	Nil	Nil	Nil	Excellent	Excellent

(1) Applies only to humidity indicator cards corresponding to MS-20003. From a practical viewpoint, used plug assemblies corresponding to MIL-I-26860, either in an "as is" condition or compacted condition, can be best disposed of by either jettisoning or storage aboard ship for transfer to a shore base for further handling. They should not be fed into shredders or incinerators aboard ships.

PACKAGING MATERIALS DISPOSABILITY RATINGS
INDICATORS

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
MIL-I-26800	Indicator, humidity, plug color change	Plug bodies, lock nuts, screws; aluminum, brass; gaskets: rubber; window: transparent plastic; spacer: asbestos rubber; humidity card: cellulose impregnated with cobaltous chloride	Plugs fitted into engine cylinders, barrier materials, rigid containers, drums, etc, to permit continuous inspection of relative humidity of sealed interior space	Nil	Depending on type, etc, plugs capable of operating with internal air pressures from atmosphere to approximately 20 lb/in^2
MS-20003	Indicator, humidity, card, three spot, impregnated areas (cobaltous chloride)	Paper (cellulose) impregnated with cobaltous chloride	Indicates relative humidity; required for method 11 packing under methods of preservation, MIL-P-116	Nil	-

PACKAGING MATERIALS DISPOSABILITY RATINGS
MISCELLANEOUS PACKAGING MATERIALS

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	Paper: 0.7/1.15; aluminum: 2.7; plastic: 0.9/1.4, depending on plastic
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Nil
Biodegradability	Extremely slow
Combustibility	Aluminum: nil; other materials: excellent
Heating Value, Btu/lb, approx	Aluminum: nil; paper: 7,700; plastic: up to 20,000
Shreddability	Excellent(1)
Compactability Unshredded Shredded	 Fair Good
Sulfur, %, approx	Aluminum: less than 0.1%; paper: 0.1%; plastic: up to 0.5%

Shipboard Disposal Processing Equipment	Predisposal Processing — Shipboard Processing Feasibility			Environmental Impact		Disposability Rating Via	
	Ease of Prehandling by Ship's Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine	Jettisoning(2)	Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent	Fair	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent(1)	Good(1)	Nil(1)	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent(1)	Good(1)	Nil(1)	Nil	Nil	Excellent	Excellent
Incinerator	Excellent	Excellent	Nil(3)	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent(1)	Excellent(1)	Nil(1, 3)	Nil	Nil	Excellent	Excellent

(1) Large bundles of plastic films should not be fed at one time into shredders in order to avoid jamming or clogging of the units.

(2) Negative buoyancy required

(3) Aluminum is expected to melt at incinerator operating temperatures and to pass through grates into ashpit without adverse operational effects.

PACKAGING MATERIALS DISPOSABILITY RATINGS
MISCELLANEOUS PACKAGING MATERIALS

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
MIL-E-6050	Envelopes, packaging, water vapor proof, flexible	Conforms to class 1 of specification MIL-B-131; plastic: unidentified; foil: aluminum; paper: cellulose	Packaging of items requiring maximum protection from water vapor penetration; intended for use under applicable packaging method II of specification MIL-P-116, specifically for floating bag applications, containers with both dimensions exceeding 36 inches, or for packages with inspection windows	Substantially nil	-
MIL-W-10850	Window, observation	Semirigid, transparent, sheet material; paper (cellulose) plus unidentified plastic coating	Windows for bags, envelopes, shrouds, or other flexible barrier material containers for observing items & equipment or humidity sensing devices presented in water-vapor proof barriers in accordance with MIL-P-116, methods II & IA for class 1 windows; and in waterproof barrier materials in accordance with MIL-P-116, method 1C for class 2 windows	Substantially nil	-

PACKAGING MATERIALS DISPOSABILITY RATINGS
PACKAGING HARDWARE (EX STRAPPING)

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	Varies with metal or alloy; range: steel, 7.7 phosphor bronze, 8.9
Bulk Density, lb/ft³, approx	NA
Magnetic Susceptibility	Steel, iron: excellent; other metals: nil
Biodegradability	Extremely slow
Combustibility	Nil
Heating Value, Btu/lb, approx	Nil
Shreddability	(1)
Compactability	Excellent
Sulfur, %, approx	Nil

Shipboard Disposal Processing Equipment	Predisposal Processing — Shipboard Processing Feasibility: Ease of Prehandling by 'hips' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Environmental Impact: Atmosphere	Environmental Impact: Marine	Disposability Rating Via: Jettisoning(3)	Disposability Rating Via: Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder	Caution(1)	Excellent, caution(1)	Caution(1)	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Caution(1)	Excellent, caution(1)	Caution(1)	Nil	Nil	Excellent	Excellent
Incinerator	Caution(2)	Excellent, caution(2)	Caution(2)	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Caution(1, 2)	Excellent, caution (1, 2)	Caution(1, 2)	Nil	Nil	Excellent	Excellent

(1) Only small size nails, tacks, screws, or nuts should be fed into shredders which can handle these sizes readily. Large size nails, screws, spikes, bolts, etc, should not be fed into shredders to avoid jamming the units. Materials made of tough alloys with poor shear characteristics should not be fed into shredders.

(2) Small size nails, tacks, or screws fastened to combustible materials fed into incinerators will pass harmlessly through the grates into the ash pits. Large size nails, screws, spikes, bolts, or studs fastened to combustible materials should not be fed into incinerators.

(3) Wherever possible, disposal by jettisoning is preferred for this category of materials.

PACKAGING MATERIALS DISPOSABILITY RATINGS
PACKAGING HARDWARE (EX STRAPPING)

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
FF-B-561	Bolts (screw) lag	Grade B: low-carbon steel; Grade C: corrosion-resistant steel; Grade D: copper-silicon alloy; Uncoated: may have black oxide coating; Coated: zinc, cadmium; phosphate corrosion-resistant bolts shall be passivated	For fastening metal to wood, or wood to masonry	Nil	Square or hex heads
FF-B-575	Bolts, hexagon and square	Carbon and alloy steel; corrosion resistant steel; nonferrous bolts; manganese bronze, phosphor bronze, silicon bronze, naval brass, aluminum alloy, nickel-copper alloy, nickel-copper-aluminum alloy, as required	For insertion through holes in assembled parts and normally are tightened or released by torquing a nut	Limited	-
FF-B-584	Bolts, finned neck; key head; machine; ribbed neck; square neck; tee head	Carbon steel unless otherwise specified; corrosion-resistant steel, naval brass, aluminum alloy, nickel-copper, or other materials, when so specified; uncoated: black oxide acceptable; plated: zinc, cadmium; coated: phosphate, as required	Used in various applications with nuts as fastening devices	Limited	-
FF-N-103	Nails (small) and tacks: cut	Steel; copper as required	Typical uses: basket, clout, trunk bill poster, carpet, hide, lace, trimmers, upholsterers, cobblers, hob, hand shoe, nails and/or tacks	Nil	-
FF-N-105	Nails, wire, brads, and staples, cut and wrought	Steel wire, nails, steel, hardened, medium carbon steel, copper, copper clad steel wire, aluminum alloy wire, wrought iron and steel, brass wire, all as required; coatings: zinc, chemical etching, blued, tin, brass or copper plating, all as required	Typical: asbestos shingle, barrel, boat, box, broom, casing, coolers, sinkers, corkers, concrete, fine, finishing flooring, lath, masonry, pallet, siding, shingle, slating wallboard, fence, wetting, cobblers, etc	Nil	-
FF-N-836	Nuts, hexagon and square	Steel, corrosion-resistant steel, brass, aluminum alloy, nickel-copper alloy, and other materials as specified	For assembly with bolts and screws for application at normal atmospheric temperature	Nil	-

PACKAGING MATERIALS DISPOSABILITY RATINGS
PACKAGING HARDWARE (EX STRAPPING) (CONT)

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
FF-S-1362	Stud, plain, general purpose	Steel, nickel-copper alloy, brass, corrosion-resistant steel, as specified; protective finish: cadmium plating, oxide and black chemical finishes, as specified	General purpose full-threaded fasteners, utilizing class 2 and 3 threads	Nil	-
MIL-F-1209	Fastener, metal, nut-sleeve assembly	Carbon steel	For use with standard bolts as assembly fasteners for reusable exterior shipping containers; assemblies are permanently installed in parts of skids, sills, cleats, or other fastening members of the container, and bolts passing through panels adjacent to the panels in which the assemblies are secured; engage the threads in the assembly	Nil	-

PACKAGING MATERIALS DISPOSABILITY RATINGS

PACKAGING HARDWARE, METALLIC STRAPPING(1)

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	Steel: 7.7
Bulk Density, lb/ft³, approx	NA
Magnetic Susceptibility	Excellent
Biodegradability	Extremely slow
Combustibility	Nil; ex organic coating
Heating Value, Btu/lb, approx	Nil; ex organic coating
Shreddability	Good(3)
Compactability Unshredded Shredded	 Poor; much springback Good; some springback
Sulfur, %, approx	Nil

Shipboard Disposal Processing Equipment	Predisposal Processing: Shipboard Processing Feasibility: Ease of Prehandling by Ships' Personnel	Predisposal Processing: Shipboard Processing Feasibility: Relative Ease of Processing	Predisposal Processing: Shipboard Processing Feasibility: Effect(s) on Processing Equipment	Environmental Impact: Atmosphere	Environmental Impact: Marine	Disposability Rating Via: Jettisoning(6)	Disposability Rating Via: Storage Aboard Ship for Transfer to Shore Base
None	Fair(1)	NA	NA	NA	Nil	Excellent	Unsatisfactory
Compactor	Fair(1)	Poor	Nil	Nil	Nil	Excellent	Poor
Shredder	Fair(1)	Good(3)	Nil(3)	Nil	Nil	Excellent	Good
Shredder/Compactor	Fair(1)	Good(3)	Good	Nil	Nil	Excellent	Good
Incinerator	Fair(1, 2)	Unsatisfactory(4)	Potentially harmful(4)	Nil	Nil	Excellent	Unsatisfactory
Shredder/Incinerator	Fair(1, 2)	Excellent(3, 5)	Nil	Nil	Nil	Excellent	Good

(1) In order to avoid injury, personnel should observe unusual precautions when handling waste metallic strapping, e.g., wearing gloves and taking other preventive measures as required.
(2) Disposal by means other than incineration is recommended.
(3) Large bundles of metallic strapping should not be fed at one time into shredders in order to avoid personnel hazard & clogging of the units.
(4) Unshredded metal strapping should not be fed into incinerators because the material will not pass readily between grates into the ash pit.
(5) Shredded metallic strapping will pass harmlessly between incinerator grates into the ash pit.
(6) Recommended method of disposal.

PACKAGING MATERIALS DISPOSABILITY RATINGS
PACKAGING HARDWARE, METALLIC STRAPPING

Applicable Specifications					Remarks
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	
QQ-S-781	Steel strapping, flat and seals	Steel, cold and/or hot-rolled depending on requirements	Joined strapping wraps for reinforcement or closure, or both, of shipping containers; securing the holding of compressed materials in bales; for securing multiple units on skids or pallets; for bundling together loose or packaged materials into bundles or lifts, for internal bracing of materials in containers, or light-duty and heavy-duty work in containers, or light-duty and heavy-duty work in power machines, and for securing or bracing packages or loose materials in or on vehicles - Type I: naillless, light-duty, heavy-duty; Type II: nail-on; Type III: twist-tie; Type IV: light-duty, heavy-duty. Classes for above types as specified - Class A: coated-finish (organic); Class B: zinc-coated (galvanized), Grade 1: heavy, Grade 2: standard; Class C: uncoated	Nil	A highly detailed specification
QQ-S-790	Strapping, round; steel, bare and zinc-coated	Carbon steel, cold drawn bare: surface blue, brown, or bright, free of excess black oxide; coated: galvanized (zinc-coated)	Bare: for use in locations where corrosion in short-term service is considered inconsequential; Coated: for use in overseas shipments or extended periods of storage under adverse climatic conditions	-	-

PACKAGING MATERIALS DISPOSABILITY RATINGS
PACKAGING HARDWARE, STRAPPING, NONMETALLIC

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	Steel: 7.7; nylon: 1.12 typical; rayon: 1.6; glass: 2.5
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Nil
Biodegradability	Extremely slow
Combustibility	Nonmetals: excellent; metal, glass: nil
Heating Value, Btu/lb, approx	Other than metal and glass: 13,600
Shreddability	Excellent
Compactability	Good; some springback
Sulfur, %, approx	Up to 0.2%

Predisposal Processing				Environmental Impact		Disposability Rating Via	
Shipboard Disposal Processing Equipment	Shipboard Processing Feasibility					Jettisoning	Storage Aboard Ship for Transfer to Shore Base
	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine		
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Excellent	Good	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent(1)	Good(1)	Nil(1)	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent(1)	Good(1)	Nil(1)	Nil	Nil	Excellent	Excellent
Incinerator	Excellent	Excellent(2)	Nil(2)	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent(1)	Excellent(1, 2)	Nil(1)	Nil	Nil	Excellent	Excellent

(1)Large bundles of nonmetallic strapping should not be fed at one time into shredders in order to avoid clogging the units.
(2)Metal connectors would be expected to pass harmlessly between incinerator grates into the ash pit.

PACKAGING MATERIALS DISPOSABILITY RATINGS
PACKAGING HARDWARE, STRAPPING, NONMETALLIC

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
PPP-S-760	Strapping, nonmetallic (and connectors)	Strapping: nylon; typical reinforcing filaments: nylon, rayon, glass; connectors: steel with protective coating of zinc, cadmium, black iron oxide, or equivalent	Reinforcement or closure of shipping containers, for securing or holding compressed materials in bales, for securing multiple units on skids or pallets, for bundling together loose or packaged material, for internal bracing of materials in containers, bulkheading or tie-down lashings of containers, and for securing or bracing packages, loose materials, or equipment in closed conveyances - Type I: nonwaterproof, Grade A: regular duty, Grade B: heavy-duty, for strapping of materials undercover or inside storage; Type II: for overseas shipment and long-term storage	Nil	-

PACKAGING MATERIALS DISPOSABILITY RATINGS
PALLETS

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Wooden pallets: excellent; fiberboard: occasionally only
Specific Gravity, approx	Wood: varies with species, 0.4-0.75; fiberboard: 0.7-1.15; steel: 7.7
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Nil
Biodegradability	Extremely slow
Combustibility	Excellent, except for metal components
Heating Value, Btu/lb, approx	Wood: 8,500; fiberboard: 7,800
Shreddability	Excellent(1)
Compactability	Wood: excellent(1); fiberboard: good (1)
Sulfur, %, approx	Wood: 0.15%; fiberboard: 0.15%

Shipboard Disposal Processing Equipment	Predisposal Processing: Shipboard Processing Feasibility: Ease of Prehandling by Ships' Personnel	Shipboard Processing Feasibility: Relative Ease of Processing (2)	Shipboard Processing Feasibility: Effect(s) on Processing Equipment	Environmental Impact: Atmosphere	Environmental Impact: Marine	Disposability Rating Via: Jettisoning	Disposability Rating Via: Storage Aboard Ship for Transfer to Shore Base
None	Excellent(1)	NA	NA	NA	Nil	Excellent	Excellent
Compactor(3)	Excellent(1)	Wood: excellent fiberboard: good strapping: poor	Nil	Nil	Nil	Excellent	Excellent
Shredder(4)	Excellent(1)	Good	Nil	Nil	Nil	Excellent	Excellent
Shredder/Compactor(4)	Excellent(1)	Wood: excellent fiberboard: good strapping: good -	Nil	Nil	Nil	Excellent	Excellent
Incinerator(3)	Excellent(1)	Wood/fiberboard: excellent; strapping: unsatisfactory	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent(1)	Excellant	Nil	Nil	Nil	Excellent	Excellent

(1) In order to avoid injury, ship's personnel should observe unusual precautions when handling waste metallic strapping; e.g., wearing gloves and taking other preventive measures as required.
(2) Applies only to pallets deteriorated to rejection level and which must be reduced to sizes small enough to fit into feedhoppers of processing units.
(3) Unshredded metal strapping should not be fed into compactors or incinerators.
(4) Large bundles of metal strapping should not be fed at one time into feedhoppers of shredders in order to avoid personnel hazard and clogging of the units.

PACKAGING MATERIALS DISPOSABILITY RATINGS
PALLETS

Applicable Specifications					Remarks
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	
MIL-P-3938	Pallet, material handling, hardwood, stringer construction, 4-way	Wood: cellulose and lignin, use of many wood species permissible; moisture content limits - Class A: dock boards, 19% max. average; stringers, 26% max.; Class B: no restrictions; Nails: flat head, steel wire	General materials handling operations in military storage and distribution system where 2-way or partial 4-way entry is required by conventional materials handling mobile equipment; may be used for long-term storage in both covered and uncovered areas	Excellent	Type I: pallets complete and ready for use when delivered; Type II: pallets complete and ready for use after field assembly
MIL-P-15011	Pallets, material handling, wood post construction, 4-way entry	Wood: cellulose and lignin; use of many species of woods permitted for low, medium and high density wood groups, preservative unidentified; moisture content limits -- Class 1: 22% max. average; Class 2: no restrictions; nails: hardened steel, meeting FF-N-105, type II, style 18	General materials handling operations in military storage and distribution system, where full 4-way entry is required by conventional materials handling mobile equipment; may be used for long-term storage in both covered and uncovered areas	Excellent	Type I: pallets complete and ready for use when accepted by Government; type II: components to be sized and finished as required and furnished with sufficient hardware for field assembly
MIL-P-26392	Pallet, box, fiberboard; expendable for air shipment	Fiberboard: cellulose, for fabrication of trays, bodies, caps, inserts, portions of base, weather resistant (PPP-F-320); paperboard: cellulose, for posts and supports (PPP-P-291); metal fasteners, staples, and stitching wire: steel, zinc, or copper washed; adhesive: MMM-A-250, unidentified; strapping: steel, flat	Containers or consolidating many small items for air shipment	Only for occasional returnable item	Knock-down type, for consolidation containers

PACKAGING MATERIALS DISPOSABILITY RATINGS
PRESERVATIVES

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	0.9/1.1; varies widely among products
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Nil
Biodegradability	Extremely slow
Combustibility	NA
Heating Value, Btu/lb, approx	NA
Shreddability	NA
Compactability	NA
Sulfur, %, approx	NA

Predisposal Processing				Environmental Impact		Disposability Rating Via	
Shipboard Disposal Processing Equipment	Shipboard Processing Feasibility (1)						
	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine	Jettisoning	Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	NA(2)	Excellent
Compactor	NA	NA	NA	NA	NA	NA	Excellent
Shredder	NA	NA	NA	NA	NA	NA	Excellent
Shredder/Compactor	NA	NA	NA	NA	NA	NA	Excellent
Incinerator	NA	NA	NA	NA	NA	NA	Excellent
Shredder/Incinerator	NA	NA	NA	NA	NA	NA	Excellent

(1) Compaction, shredding, and incineration are considered inapplicable for this category of packaging material.
(2) Used materials and rejected contents of depleted containers of materials corresponding to: A. specifications VV-L-800, MIL-L-3150, MIL-C-6529, and MIL-L-21260 should be transferred to the ship's waste oil tank for storage and transfer to a shore base for further handling and never should be jettisoned; B. specifications MIL-C-16173, MIL-P-46046, and MIL-G-81322 should be retained in containers for storage and transfer to a shore base and never should be jettisoned. Also refer to NAVSUP publ 4500 CHIL of 1 July 1973 for supplementary guidance.

PACKAGING MATERIALS DISPOSABILITY RATINGS
PRESERVATIVES

Applicable Specifications					Remarks
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	
VV-L-800	Lubricating oil, general purpose, preservative (water displacing, low temperature)	Petroleum fraction with additives as necessary	Lubrication and protection against corrosion of certain small arms and automatic weapons	Nil	-
MIL-L-3150	Lubricating oil, preservative, medium	Petroleum fraction with additives as necessary to meet performance requirements	Lubrication and protection against corrosion of ferrous and nonferrous metals, interiors of gear assemblies, transmissions, differentials, etc, not intended for internal combustion engines	Nil	-
MIL-L-6085	Lubricating oil, instrument, aircraft, low volatility	Dibasic acid esters with additives as necessary to meet performance requirements	For aircraft instruments, electronic equipment, or where a low evaporation oil is required for low and high temperature application	Nil	-
MIL-C-6529	Corrosion preventive aircraft engine	Type I: concentrate material; type II: ready-mixed material; type III: ready-mixed material	Type I: one part plus three parts: MIL-L-6082 for reciprocating engines, MIL-L-6081 for turbojet engines; type II: for reciprocating engines; type III: for jet engines; above constitute corrosion preventive lubricants	Nil	-
MIL-G-81322	Grease, aircraft, general purpose, wide temperature range	Wide temperature range liquid lubricant with a high melting point gelling agent, no other identification	Wheel bearings in internal brake wheel assemblies, antifriction bearings, gear boxes, plain bearings of aircraft; for temperatures: -65 to 350° F	Nil	-
MIL-C-10382	Corrosion preventive, petrolatum, spraying application: for food handling machinery and equipment	Component / Weight % Petroleum, white microcrystalline wax / 31.0±1.0 Lanolin, USP / 10.5±0.5 1-hydroxyethyl-2 heptadecenyl imidazoline / 0.5±0.05 2-amino-2-methyl-1 propanol / 0.5±0.05 Dry cleaning solvent P-D-680 type I / To make 100%	Prevention of corrosion of food handling machinery and equipment during storage	Nil	-

PACKAGING MATERIALS DISPOSABILITY RATINGS
PRESERVATIVES (CONT)

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
MIL-G-16924	Grease, automotive and artillery	Petroleum oil with soap thickener to meet requirements; must contain no dye	Lubrication and surface corrosion protection of all automotive and artillery equipment operated over a temperature range of -65 to +225° F; not intended for use on machinery coming into contact with foods	Nil	-
MIL-C-11796	Corrosion preventive compound petrolatum, hot application	Petroleum modified to meet performance requirements; three classes of compounds, viz: 1: hard film 2: medium film 3: soft film	Prevention of corrosion of military equipment Class 1: unshielded outdoor storage of gun tubes, etc; protection of small metal parts packaged or unpackaged; long-term indoor storage of highly finished surfaces, as recoil mechanisms Class 1A: as for class 1 and also submarine ballast tanks Class 2: unshielded outdoor storage of material at temperatures not exceeding flow point of material; for packaging of automotive parts, etc; for storage under conditions where class 3 is too soft or has too low melting point Class 3: preservation of antifriction bearings; on machined surfaces for which a protective material that is brushable and easily removed, is required	Nil	-
MIL-C-18487(03)	Compound, gun slushing	Not specified	Corrosion preventive for ferrous and nonferrous metals in indefinite storage, indoors and outdoors; hot application in thin coats	Nil	-
MIL-L-21260	Lubricating oil, internal combustion engine, preservative and break-in	Petroleum base lubricating oil plus functional additives (detergents, dispersants, oxidation and corrosion inhibitors, etc); type I and II lubricants must contain a zinc dialkyl or diaryl phosphate or a combination thereof	Preservative and break-in use for reciprocating spark ignition and compression ignition engines in all types of ground equipment at temperatures above -10° F	Nil	Type I oils for use in all engines operating at output levels up to 150 lb/in2, BMEP; type II for compression ignition engines operating at output levels above approximately 150 lb/in2, BMEP

PACKAGING MATERIALS DISPOSABILITY RATINGS
PRESERVATIVES (CONT)

Applicable Specifications					
Specification No.	Specification Title	Material, Chemical Composition	Common End Uses	Reuse Capability	Remarks
MIL-G-23827	Grease, aircraft and instrument, gear and actuator screw	Low temperature lubricant with a gelling agent	High and low temperature operations of: ball, roller, and needle bearings, gears, sliding surfaces of cameras; electronic gear, and aircraft control systems; functional between -65 to 160° F	Nil	-
MIL-P-46046	Preservative fluid automotive brake system and components	Composition No. / Components: 1 — Castor oil, 3-methoxy butanol-1, borax glycol condensate, antioxidant 2 — Castor oil, n, B'-methoxy-methoxy ethanol, borax glycol condensate, antioxidant 3 — Castor oil, diethylene glycol mono-methyl ether, ethylene glycol mono-butyl ether, borax glycol condensate, di-T-butyl-P-cresol, M-cresol Suitable antioxidants include hydroquinone, 2.5 ditertiary-butyl hydroquinone	Preservation of automotive hydraulic brake systems of vehicles in storage; also a packaging fluid for both wheel cylinder and master cylinder assemblies	Nil	-
MIL-C-16173	Corrosion preventive compound, solvent cutback, cold application	Grade 1: asphalt compound dissolved in petroleum solvent; grade 2: amber-colored compound dissolved in solvent; grade 3: solvent dispersed compound plus additives imparting water displacing characteristics; grade 4: solvent dispersed, amber-colored material which remains transparent after evaporation of solvent; grade 5: solvent dispersed corrosion preventive compound which forms a thin, readily removable film after evaporation of solvent	Grade 1: (a) for protection of metals when exposed to outdoor weather conditions; (b) for general purpose preservation, indoor or outdoor, with or without cover, for domestic and overseas shipment where a "dry-to-touch" film is required; grade 2: (a) for extended undercover protection of interior or exterior surfaces of machinery, instruments, bearings or material with or without use of supplementary barrier materials; (b) for outdoor protection (cont on next page)	Nil	Precautionary measures when applying: avoid use near open flames, sparks, or cutting or welding operations; avoid breathing of vapors; avoid prolonged or repeated contact with skin

PACKAGING MATERIALS DISPOSABILITY RATINGS
PRESERVATIVES (CONT)

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
			of material for limited periods where metal temperatures do not reach levels which produce prohibitive flow of the corrosion preventive film; grade 3: (a) for use where water or saline solution must be displaced from corrodible surfaces and the corrosion prevented or arrested; (b) for protection of interior surfaces of machinery, instruments, or material under cover for limited periods; (c) for protection of critical bare steel or phosphated surfaces for extended periods when packaged with satisfactory barrier materials (Note: use grade 5 on metals which may be attacked by an alkaline treatment during the preservative removal stage. The chemical "boil-out" is alkaline and its use should be avoided with such materials as aluminum and magnesium alloys); grade 4: (a) for general purpose indoor and limited outdoor preservation of corrodible metals with or without an overwrap and where handling, stacking and counting requires a tack-free coating; (b) where a transparent coating is required in addition to properties indicated in item (a) above; (c) where there is no requirement for miscibility with lubricating oil and where ease of removal with stoddard's solvent is important; grade 5: for use in place of grade 3 corrosion preventive compound where chemical "boil-out" cannot be used for removal (see grade 3)		

PACKAGING MATERIALS DISPOSABILITY RATINGS
TAPES

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Nil
Specific Gravity, approx	Varies widely, depending on specific proprietary composition: 0.7/1.3
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Nil
Biodegradability	Extremely slow
Combustibility	Excellent
Heating Value, Btu/lb, approx	6,000/14,000, depending on proprietary formulations used for individual tapes
Shreddability	Excellent
Compactability	Good; some spring back
Sulfur, %, approx	Up to 0.5%, depending on specific proprietary formulation

Predisposal Processing				Environmental Impact		Disposability Rating(1) Via	
	Shipboard Processing Feasibility						
Shipboard Disposal Processing Equipment	Ease of Prehandling by Shipboard Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine	Jettisoning	Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	Nil	Nil	Excellent	Excellent
Compactor	Excellent	Good	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent	Good	Nil	Nil	Nil	Excellent	Excellent
Incinerator	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent

(1) Refers to used or residual tape adhering to other packaging materials and also to unused tape no longer suitably utilizable. In general, tapes bonded to other packaging materials have substantially the same disposability characteristics as the materials to which they are bonded.

PACKAGING MATERIALS DISPOSABILITY RATINGS
TAPES

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
L-T-90	Tape, pressure-sensitive, adhesive	Type I: cellophane (adhesive unspecified); type II: cellulose acetate (adhesive unspecified)	Nonpermanent applications Permanent applications	Nil	-
L-T-99	Tape, pressure-sensitive, identification	Laminated cellulose acetate-plastic film bonded to paper; adhesive unspecified	Type I: short-term applications; type II: long-term applications	Nil	-
L-T-100	Tape, pressure-sensitive adhesive, polyester film	Polyester film plus unspecified adhesive	Type I: solvent resistant; type II: weather & solvent resistant	Nil	-
UU-T-101	Tape, gummed, mending & reinforcing	Type I: paper (gum (water-activated) unspecified); types III & IV: cloth (gum (water-activated) unspecified)	Mending & reinforcing applications	Nil	-
UU-T-106	Tape, pressure-sensitive adhesive, masking, paper	Type I: creped paper (adhesive unspecified); type II: flat paper (adhesive unspecified)	Masking surfaces not to be covered by finishes; not to be used for carton sealing or closure	Nil	-
PPP-T-42	Tape, pressure-sensitive adhesive (general packaging application)	Crepe paper: cellulose; adhesive: unidentified	Light-duty bundling, holding, & packaging applications	Nil	-
PPP-T-45	Tape, gummed, paper reinforced & plain, for sealing & securing	Kraft paper backing reinforced with glass, seal, or rayon & asphalt laminate; adhesive unspecified	Sealing fiberboard boxes, securing package wrappings, banding of wire, pipe, hose, tubing, etc	Nil	-
PPP-T-60	Tape, pressure-sensitive adhesive, waterproof for packaging	Composition unspecified for types I, II, & III	Type I: high resistance to water vapor; type II: waterproofing operations; type III: protection versus water penetration, moisture vapor penetration unimportant	Nil	-
PPP-T-66	Tape, pressure-sensitive, vinyl plastic film	Polyvinyl chloride or polyvinyl chloride - vinyl acetate film + unspecified adhesive	Sealing, identification, & corrosion prevention applications requiring resistance to sunlight, water, oils, solvents, acids, & alkalies	Nil	-
PPP-T-0070	Tape, pressure-sensitive (packaging grade vinyl plastic film)	Unplasticized polyvinylchloride backing plus unidentified adhesive	Closing & sealing interior domestic containers; general purpose hold & sealing	Nil	-

PACKAGING MATERIALS DISPOSABILITY RATINGS
TAPES (Cont)

Applicable Specifications					Remarks
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	
PPP-T-76	Tape, pressure-sensitive adhesive paper (for carton sealing)	Kraft paper backing plus unidentified adhesive	Sealing fiberboard cartons for packing & packaging; suitable at -65 to +160° F	Nil	-
PPP-T-97	Tape, pressure-sensitive adhesive, filament reinforced	Composition undisclosed; contains filaments, e.g., nylon, rayon, polyester, etc	Securing packages; reinforcing bundles & containers	Nil	-
MIL-T-22085 (WEP)	Tape, pressure-sensitive adhesive, preservation & sealing	Composition of tape not specified	Protect aircraft missiles, rockets; type I: oil & weather resistant; type II: weather resistant (nonoil surfaces)	Nil	-
MIL-T-43036	Tape, pressure-sensitive adhesive, plastic film, filament reinforced	Polyester film backing with unspecified adhesive plus longitudinal reinforcing filaments also unidentified	Moisture vaportight seal for fiber containers, cans, & slip-cover containers over range -66 to +155° F	Nil	-
MIL-T-43115	Tape, pressure-sensitive adhesive, for preservation & sealing	Composition unspecified, but plastic film backing used	Similar to above, but applicable at 0° F & perform over range -15 to +140° F	Nil	-

PACKAGING MATERIALS DISPOSABILITY RATINGS
VOLATILE CORROSION INHIBITORS

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	Refer to next page
Specific Gravity, approx	NA
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	Nil
Biodegradability	Extremely slow(1)
Combustibility(2)	Aluminum foil: nil; all others: excellent
Heating Value, Btu/lb, approx	Aluminum foil: nil; all others: varies widely, depending on composition, 7,700/20,000
Shreddability(2)	Excellent
Compactability(2)	Good
Sulfur, %, approx	Varies, depending on composition, up to perhaps 0.5% for oil type corrosion inhibitors

Predisposal Processing				Environmental Impact		Disposability Rating V.2	
	Shipboard Processing Feasibility						
Shipboard Disposal Processing Equipment	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine	Jettisoning	Storage Aboard Ship for Transfer to Shore Base
None	Excellent(3)	NA	NA	Nil	Nil(2)	Excellent(2)	Excellent
Compactor	Excellent(2),(3)	Good(2)	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent(2),(3)	Good(2),(4)	Nil(4)	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent(2),(3)	Good(2),(4)	Nil(4)	Nil	Nil	Excellent	Excellent
Incinerator	Excellent(2),(3)	Excellent(2)	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent(2),(3)	Excellent(2),(4)	Nil(4)	Nil	Nil	Excellent	Excellent

(1) Does not apply to oil-type corrosion inhibiting materials corresponding to MIL-I-23310 & MIL-L-46002 which are not to be jettisoned.
(2) Materials corresponding to MIL-I-23310 & MIL-L-46002 should not be compacted, shredded, or incinerated. They are to be rejected into the waste oil tank for transfer to a shore base for further handling. Disposability rating by this method is excellent.
(3) The following precautions are to be observed by ships' personnel while handling materials meeting MIL-F-22019, MIL-B-22020, & MIL-I-22110: (A) Do not rub or wipe eyes when handling this product. (B) After handling, wash hands thoroughly with soap & water.
(4) Large bundles of plastic films or bags should not be fed at one time into shredders in order to avoid jamming or clogging the units.

PACKAGING MATERIALS DISPOSABILITY RATINGS
VOLATILE CORROSION INHIBITORS

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
MIL-F-22019	Film, transparent, flexible, heat sealable, volatile, corrosion inhibitor treated	Plastic plus volatile corrosion inhibitor, e.g., selected organic amine	Protective package for period up to 24 months where transparency to facilitate inspection is required	Nil	The following precautions must be observed by ships' personnel when handling this material: (A) Do not rub or wipe eyes while handling this product. (B) After handling, wash hands thoroughly with soap & water
MIL-B-22090	Bags, transparent, flexible, sealable, volatile, corrosion inhibitor treated	As above	As above	Nil	
MIL-I-22110	Inhibitors, corrosion, volatile, crystalline	Solid form of vaporizing corrosion inhibitor, typically a selected organic amine	Preservative for selected classes of ferrous & nonferrous alloys	Nil	
MIL-I-23310	Inhibitors, corrosion, volatile, oil type	Petroleum base oil containing a volatile corrosion inhibitor, e.g., selected organic amines	Preservative for closed systems basically made of ferrous or aluminum alloys; not intended as an operational preservative oil	Nil	Disposal: drainings to waste oil tank for transfer to shore base for further handling
MIL-B-40028	Bags, barrier, with volatile corrosion inhibitor treated liners	Plastic, paper, aluminum foil, paper & selected organic amines, laminated fiberboard, & asphalt laminates	Packaging items for indeterminate storage & overseas shipment where high resistance to corrosion of ferrous metals is required	Nil	-
MIL-L-46002	Lubricating oil, contact & volatile corrosion inhibiting	Generally similar to MIL-I-23310 which is intended specifically for Navy use	Preservative for closed systems where protection of surfaces above oil level is required	Nil	Disposal: drainings to waste oil tank for transfer to shore base for further handling

PACKAGING MATERIALS DISPOSABILITY RATINGS
WRAPPING MATERIALS (OTHER THAN BARRIER MATERIALS)

Applicable Specifications	Refer to next page
Chemical Name & Composition	Refer to next page
Common End Uses	Refer to next page
Reuse Capability	All specifications: Substantially nil
Specific Gravity, approx	Paper: 0.7/1.15; wax: 0.9; silicone: 1.05
Bulk Density, lb/ft^3, approx	NA
Magnetic Susceptibility	
Biodegradability	Extremely slow
Combustibility	Excellent
Heating Value, Btu/lb, approx	Cellulose: 7,500; wax: 20,000
Shreddability	Excellent
Compactability	Good
Sulfur, %, approx	0.15

Shipboard Disposal Processing Equipment	Predisposal Processing — Shipboard Processing Feasibility			Environmental Impact		Disposability Rating Via	
	Ease of Prehandling by Ships' Personnel	Relative Ease of Processing	Effect(s) on Processing Equipment	Atmosphere	Marine	Jettisoning	Storage Aboard Ship for Transfer to Shore Base
None	Excellent	NA	NA	NA	Nil	Excellent	Excellent
Compactor	Good	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Compactor	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Incinerator	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent
Shredder/Incinerator	Excellent	Excellent	Nil	Nil	Nil	Excellent	Excellent

PACKAGING MATERIALS DISPOSABILITY RATINGS
WRAPPING MATERIALS (OTHER THAN BARRIER MATERIALS)

Applicable Specifications					
Specification No.	Specification Title	Material Chemical Composition	Common End Uses	Reuse Capability	Remarks
UU-P-134	Paper, wrapping, wet waxed	Paper: cellulose; minimum % bleached chemical wood pulp: types I, II, III - 95%. type IV - 85%	Bread wrapping & other self-sealing applications	Substantially nil	-
UU-P-268	Paper, kraft, untreated, wrapping	Paper: cellulose	Initial wrap for general wrapping where chemically neutral, grease-water-vaporproof barrier is not required	Substantially nil	
UU-P-270	Paper, wrapping, wax-impregnated (dry)	Paper: cellulose; wax: hydrocarbon	Type I: white paper for wrapping foods; type II: brown paper, general wrapping requiring a stretchable material; type III: brown paper, general wrapping purposes	Substantially nil	-
UU-P-553	Paper, wrapping, tissue	Paper: cellulose	Type I: initial wrap protection against break, scratching, dusting: type II: as for type I plus protection against tarnishing	Substantially nil	-
NNN-P-40	Paper, lens	All types: cellulose; type III: cellulose, silicone treated	Wrapping & cleaning lenses, glass, & highly polished surfaces	Substantially nil	-
PPP-P-150	Paper, shredded, waxed	Paper: cellulose; wax: hydrocarbon	Fill voids; position items in containers; offer limited shock protection	Substantially nil	
MIL-P-130	Paper, wrapping, laminated & creped	Paper: cellulose; bonding agent: unspecified	Protective wrapper over grades A & C, MIL-B-121 greaseproof wrapper: contact wrapper where greaseproof barrier is not required; packaging wrapper where use of a carton would waste space; cover for radial or in-line engines	Substantially nil	-
MIL-P-13988	Paper, lens, tissue, antitarnish, wrapping	Paper: cellulose	Wrapping & cleaning lenses		
MIL-P-14604	Paper, glassine	Cellulose	For food & general packaging having moderate grease resistance is required; not a substitute for MIL-B-121	Substantially nil	-
MIL-P-17607	Paper, wrapping, chemically neutral (noncorrosive)	Paper: cellulose	Initial wrap where noncorrosive, non-greaseproof wrap is required	Substantially nil	-