
MILITARY METHOD II (WATER-VAPORPROOF WITH DESICCANT)

1.0 SCOPE

This standard provides various methods for packaging delicate/critical parts or components requiring water-vaporproof protection with desiccant.

2.0 REFERENCES

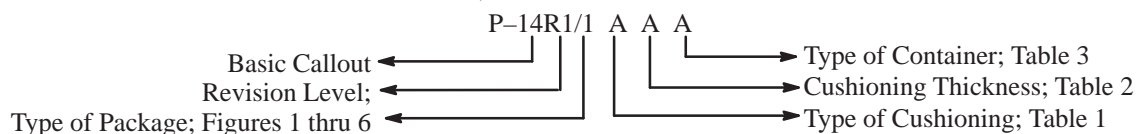
- 2.1 Lockheed General Packaging Standard 40-001
- 2.2 NAS Packaging Standard 3420, 3444
- 2.3 Lockheed Packaging Standard P-201, "Thermal Control" Labels

3.0 REQUIREMENTS

3.1 GENERAL

- 3.1.1 Requirements of Lockheed General Packaging Standard LPS 40-001 are a part of this standard unless otherwise specified.
- 3.1.2 The quantity per unit package shall be one (1) each.
- 3.1.3 Items shall be clean and free of foreign matter.
- 3.1.4 Items having irregular shapes, projections or appendages shall be padded or blocked and braced within the unit package to prevent damage to the item or rupture of the barrier or container (Ref MIL-STD-1186). Protect connectors, open ports, etc., with proper type and size protective caps (see Paragraph 5.1.1).
- 3.1.5 Shock sensitive, delicate items shall be protected with suitable cushioning material (of appropriate thickness) to prevent damage during handling, storage and/or shipment (Ref MIL-HDBK 304).
- 3.1.6 Determine the number of units of bagged desiccant (Ref MIL-P-116), MIL-D-3464) required and distribute the number of units as evenly as possible around the item.
CAUTION: DO NOT PLACE DESICCANT IN DIRECT CONTACT WITH ITEM (UNLESS ITEM IS PROTECTED WITH A NEUTRAL WRAP).
- 3.1.7 Prior to closing/sealing container or bag, insert a humidity indicator (3-spot type, Ref MS 20003) adjacent to container or bag opening as applicable. When specified, humidity plugs (Ref MIL-I-26860) may be used in lieu of MS 20003 indicators.
- 3.1.8 Item shall be enclosed in a water-vaporproof bag/container, drum or can as specified. When a bag is used, evacuate excess air and heat-seal opening. Allow sufficient barrier material to permit at least two additional reseals.
- 3.1.9 The method of packaging shall be as designated herein (see illustrations). Unless otherwise specified, cushioning material, cushioning thickness and containers shall be as specified (Ref Table 1, Table 2, Table 3 as applicable).
- 3.1.10 Container size shall be kept to minimum dimensions commensurate with the size/configuration of the item and the amount of blocking, bracing and cushioning required to protect the item.
- 3.1.11 The type of cushioning, thickness of cushioning material and type of container shall be as specified by the Lockheed Packaging Standard (LPS) callout on the procurement document.

- a. The basic callout (P-14R1) identifies a humidity control package (desiccant protection). The suffix number/letters following the basic callout, e.g., P-14R1/1AAA, identifies specific elements of the packaging requirements (type of package, type of cushioning, thickness of cushioning, type of container).



3.2 UNIT PACKAGING

3.2.1 Type 1 Package, Figure 1 (Floating Bag) – Item is enclosed within a water-vaporproof bag, secured to a mounting base with bolts/brackets/screws, etc., which requires gaskets/adhesive to seal off entry of air around the attaching hardware. This package is similar to Method IIa of Specification MIL-P-116.

- a. Cap or seal all connectors, ports, etc., cushion sharp edges or protrusions as necessary to prevent rupture of the barrier.
- b. Enclose desiccant and humidity indicator (Ref Paragraphs 3.1.6 and 3.1.7) and heat-seal opening.
- c. Place mounted item in shipping container per applicable LPS suffix (Table 3). Block/brace item securely within the container to prevent movement (Ref MIL-STD-1186).

3.2.2 Type 2 Package, Figure 2 (Container, Barrier, Container) – This package is similar to Method IIb of Specification MIL-P-116.

- a. Cap or seal all connectors, ports, etc., cushion sharp edges or protrusions as necessary.
- b. Wrap item with a neutral material and cushion in the inner container with material designated (Ref LPS Suffix, Table 1). Cushioning may be placed between containers (vendor option).
- c. Enclose desiccant and humidity indicator (Ref Paragraphs 3.1.6 and 3.1.7) and close container.

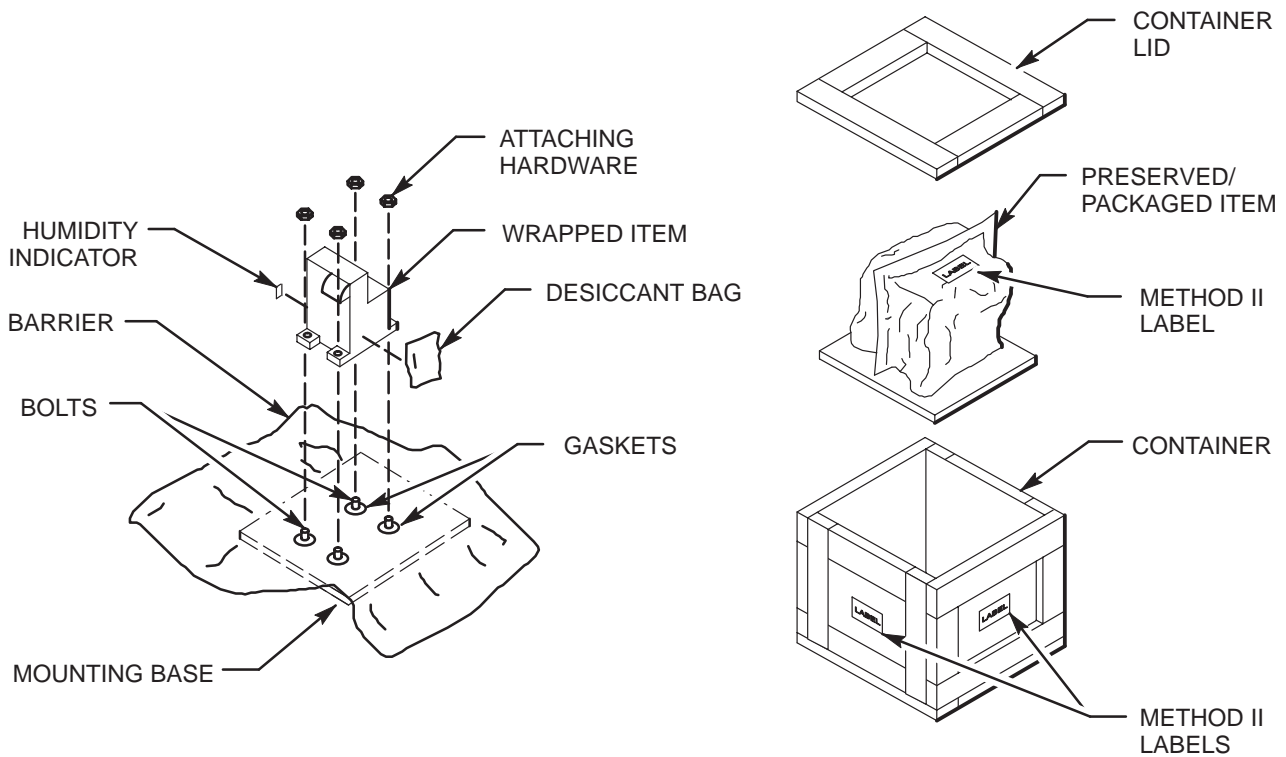


Figure 1. Floating Bag Package – Type 1 Package

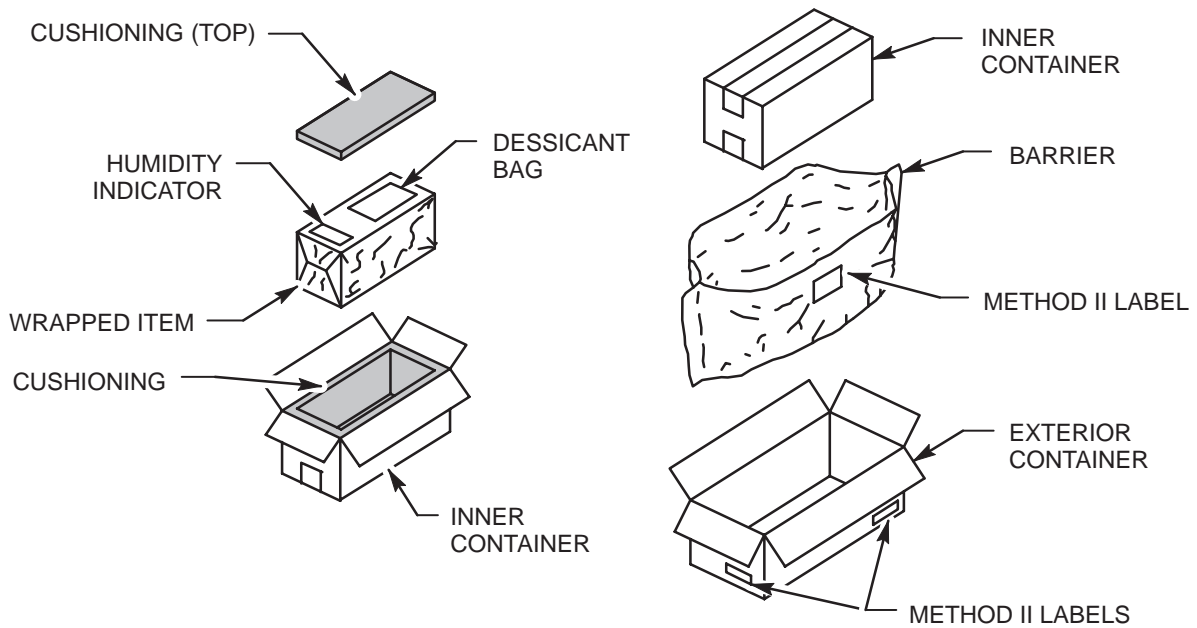


Figure 2. Container, Barrier, Container – Type 2 Package

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- d. Place container in a water-vaporproof barrier/bag, evacuate air and heat-seal opening.
- e. Insert sealed container in a “snug” fitting shipping container in accordance with the applicable LPS suffix (Table 3)

NOTE: Unless otherwise specified, the inner container shall be a corrugated fiber box (domestic type, any style).

3.2.3 Type 3 Package. Figure 3 (Cushioned Item Bag) – This package is similar to Method IIc of Specification MIL-P-116.

- a. Cap/seal connectors, ports, etc., cushion sharp edges or protrusions as necessary.
- b. Wrap item with a neutral material, cushion in accordance with the applicable LPS Suffix (Table 1) and place in a water-vaporproof bag.



Figure 3. Cushioned Item Bag – Type 3 Package

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- c. Insert desiccant and humidity indicator (Ref Paragraphs 3.1.6 and 3.1.7). Evacuate air and heat-seal opening. Place bagged item in an intermediate/shipping container as applicable.

3.2.4 Type 4 Package, Figure 4 (Rigid Metal Container Sealed) – This package is similar to method IId of Specification MIL-P-116.

- a. Cap/seal connectors, ports, etc.; cushion sharp edges or protrusions as necessary.
- b. Wrap and provide cushioning material around item (Ref LPS suffix, Table 2) and place in a rigid metal container (Ref LPS suffix, Table 3).

3.2.5 Type 5 Package, Figure 5 (Container, Barrier) – This package is similar to Method Iie of Specification MIL-P-116.

Package per Paragraph 3.2.2 except that the shipping container (Paragraph 3.2.2, Item 5) is omitted.

3.2.6 Type 6 Package, Figure 6 (Rigid Container Other than All Metal, Sealed) – This package is similar to Method IIf of Specification MIL-P-116.

Package item per Paragraph 3.2.4 except that the container is nonmetallic.

3.3 INTERMEDIATE PACKAGING – (Consolidation of unit packages, when applicable.)

3.3.1 Unit packages consisting of a barrier/bag (Ref Paragraphs 3.2.3 and 3.2.5) requires overpacking in an exterior container for shipment.

3.3.2 Unless otherwise specified, the number of unit packages per intermediate container (containing identical parts) shall be limited to the dimensions and gross weight provisions of the container specification (Ref Carrier Regulations).

3.4 PACKING (Shipping Container)

3.4.1 Pack appropriate number of intermediate containers uniformly into each shipping container.

3.4.2 Shipping containers as packed, shall protect the item from damage during ordinary handling/shipping and shall meet the minimum requirements of common carriers for safe transportation at the lowest rate to the point of delivery.

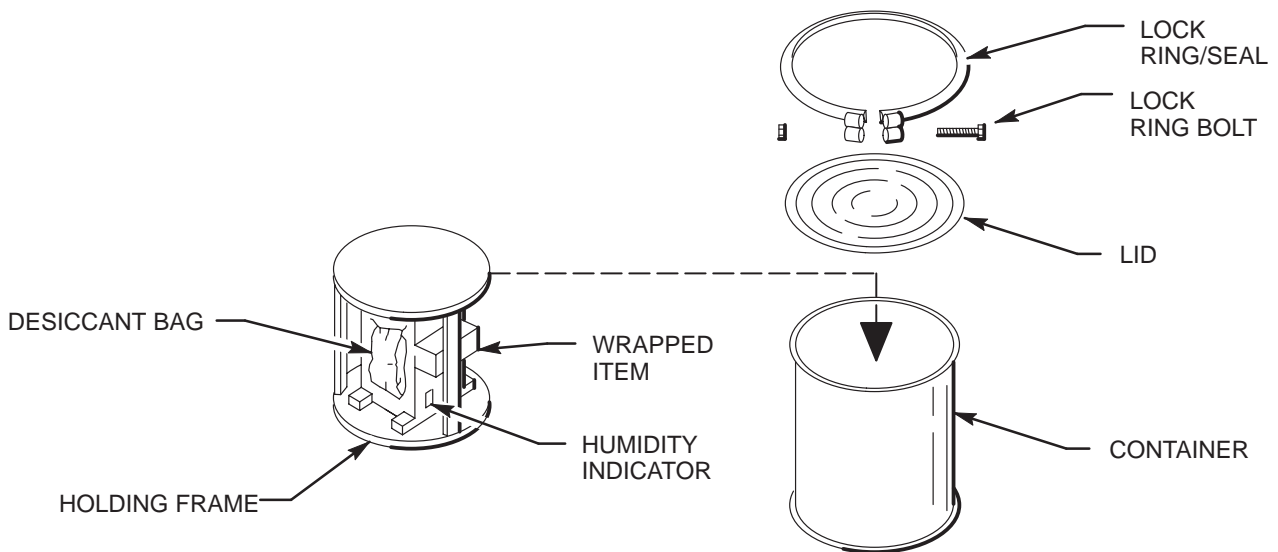


Figure 4. Rigid Metal Container – Type 4 Package

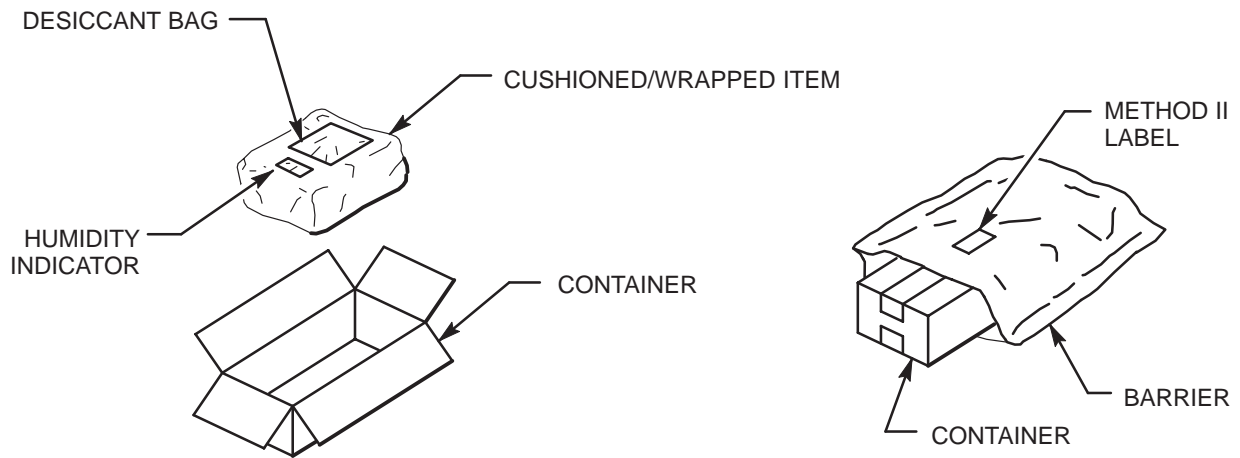


Figure 5. Container, Barrier – Type 5 Package

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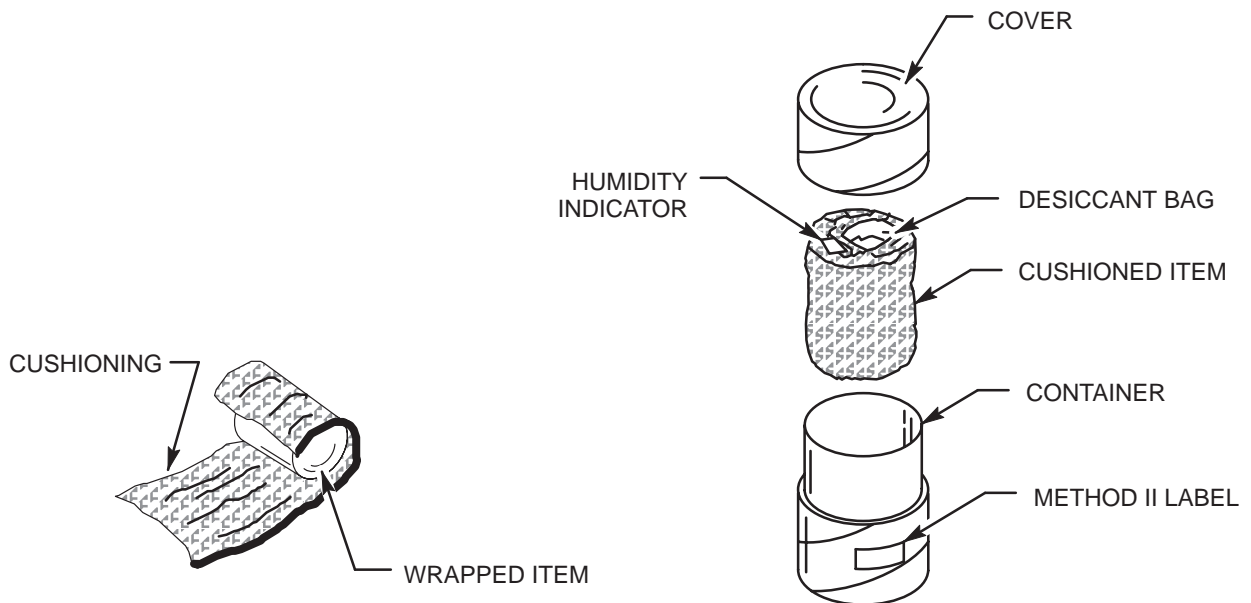


Figure 6. Rigid Container – Type 6 Package

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3.4.3 Unit or intermediate containers which meet the requirements of Paragraph 3.4.2 may be used as shipping containers.

3.4.4 Enclose or attach a copy of packing slip to the shipping container.

3.5 MARKING

3.5.1 Unit Package Marking – Label or mark each package to show at least the part number per contracting document, supplier identity, Thermal Control Labels, when applicable, Method II warning marks “PACKAGED WITH DESICCANT – DO NOT OPEN UNTIL READY FOR USE OR INSPECTION.” Additional markings may be specified in the item detail specification or drawing.

- 3.5.2 Intermediate Packaging Marking – Label or mark each container to show at least part number per contracting document, supplier and quantity of parts. Apply P-201 Thermal Control labels when applicable.
- 3.5.3 Shipping Container Marking – Label or mark each container to show part number per contracting document, the LMSC contracting document number, supplier, destination and quantity of parts.
- 3.5.4 Special, precautionary and handling markings shall be applied as required.

4.0 QUALITY ASSURANCE

4.1 Packaging shall be accomplished in such a manner as to prevent physical damage to, or degradation of, the packaged items during delivery to the using activity. It shall be the prerogative of LMSC to return damaged items, at supplier's expense, when such damage is attributable to improper or inadequate protection.

5.0 NOTES

5.1 The following information is intended as a guide or aid to suppliers in meeting requirements of this specification:

5.1.1 Material Specifications

<u>Commodity</u>	<u>Military Specification</u>
Barrier, Water Vaporproof	MIL-B-131, Class 1
Barrier, Water Vaporproof (Transparent)	MIL-B-22191, Type I
Box, Fiberboard	PPP-B-636
Box, Metal or Nonmetal	MIL-B-25305
Box, Wood Nailed	PPP-B-621
Box, Wood Cleated	PPP-B-601
Box, Wood Demountable	MIL-B-26241
Box, Wood Load Bearing	MIL-B-26195
Can, Fiber, Spiral Wound	MIL-C-3955
Can, Metal	PPP-C-96
Case, Carrying	MIL-C-4150
Cellulosic Material	PPP-C-843
Cellulosic Material, Tubular Free Flow	MIL-C-23734
Crate, Wood	PPP-C-650
Cushioning, Cellular Plastic, Flexible	MIL-C-81013
Cushioning, Polyurethane, Flexible	MIL-P-26514
Cushioning, Polystyrene, Expanded	PPP-C-850
Cushioning, Polyethylene, Unicellular	MIL-C-46842
Cushioning, Bound Fiber	PPP-C-1120
Desiccant, Bagged	MIL-D-3464

<u>Commodity</u>	<u>Military Specification</u>
Drum, Metal	MIL-D-6054
Drum, Reusable	MIL-D-6055
Film, Plastic	L-P-378
Indicator, Humidity	MS 20003
Paper, Wrapping, Neutral	MIL-P-17667
Paper, Waterproof	MIL-B-121
Plug, Humidity	MIL-I-26860
Protective Caps	MS 25177, 25178, 90376; NAS 813, 820

Table 1 CUSHIONING		
LPS Suffix	Type of Material	Material Specification
A	Cellulosic Material	PPP-C-843
B	Cellulosic Material – Tubular Free Flow	MIL-C-23734
C	Cellular Plastic (Flexible) 3/16”Cells	MIL-C-81013
D	Cellular Plastic (Flexible) 1/2” Cells	MIL-C-81013
E	Bound Fiber – Type I, Class B, Soft	PPP-C-1120
F	Bound Fiber – Type II, Medium Soft	PPP-C-1120
G	Bound Fiber – Type III, Medium Firm	PPP-C-1120
H	Bound Fiber – Type IV, Firm	PPP-C-1120
I	Polyurethane Foam – Flexible Type I, Class 2, 1.2 – 1.5 Density	MIL-P-26514
J	Polyurethane Foam – Flexible Type I, Class 2, 1.6 – 1.9 Density	MIL-P-26514
K	Polyurethane Foam – Flexible Type I, Class 2, 2.0 – 2.4 Density	MIL-P-26514
L	Polyurethane Foam – Flexible Type I, Class 2, 2.5 – 3.0 Density	MIL-P-26514
M	Polyurethane Foam – Flexible Type I, Class 2, 3.0 – 4.0 Density	MIL-P-26514
N	Expanded Polystyrene, Type I, Class 3, .9 – 1.8 Density	PPP-C-850
O	Unicellular Polyethylene Form, 1.9 – 2.6 Density	MIL-C-46842
X	Any suitable cushioning which will protect the item from shock or vibration damage during shipment.	

Table 2 CUSHIONING THICKNESS	
LPS Suffix	Cushioning Thickness Required on All Sides of the Item*
A	1/2"
B	1"
C	2"
D	3"
E	4"
F	5"
G	6"
X	As Required

*For Type 2 packaging, cushioning material may be placed between the inner and outer container. The item must be properly blocked/braced in the inner container to prevent damage to the item/container

Table 3 CONTAINERS		
LPS Suffix	Type/Style	Specification
A	Box, Corrugated, Domestic – Any Style, Single Wall (SW)	PPP-B-636
B	Box, Corrugated, Domestic – Any Style, Double Wall (DW)	PPP-B-636
C	Box, Corrugated, Weather Resistant – Any Style, Single Wall (SW)	PPP-B-636
D	Box, Corrugated, Weather Resistant – Any Style, Double Wall (DW)	PPP-B-636
E	Box, Metal or Nonmetal	MIL-B-25305
F	Box, Wood, Nailed, Domestic, Any Style	PPP-B-621
G	Box, Wood, Cleated, Domestic, Any Style	PPP-B-601
H	Box, Wood Demountable, Domestic (Plywood or Fiberboard)	MIL-B-26241
I	Box, Wood, Load Bearing, Domestic, Type I, Any Style	MIL-B-26195
J	Can, Fiber, Spiral Wound, Type I, Any Style	MIL-C-3955
K	Can, Metal, Any Style	PPP-C-96
L	Case, Carrying	MIL-C-4150
M	Crate, Wood, Open, Type as Applicable	PPP-C-650
N	Crate, Wood, Closed, Type as Applicable	PPP-C-650
O	Drum, Metal	MIL-D-6054
P	Drum, Metal Reusable	MIL-D-6055