

PPP-C-1337B
November 26, 1976
SUPERSEDING
Fed. Spec. PPP-C-1337A
November 25, 1969

FEDERAL SPECIFICATION

CONTAINERS, COMPOSITE; (STEEL DRUM WITH POLYETHYLENE INSERT)

This specification was approved by the Commissioner,
Federal Supply Service, General Services Administration,
for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers two types of single-trip composite containers suitable for surface and air shipments of liquid chemical products compatible with polyethylene. The composite container is a unit comprised of a polyethylene insert and a steel drum overpack, neither of which is intended to be used separately.

1.2 Classification.

1.2.1 Types and classes. Composite containers shall be of the following types and classes:

Type I - Surface shipment only.

Class 1 - 5 gallon.
Class 2 - 15 gallon.
Class 3 - 30 gallon.
Class 4 - 55 gallon.

Type II - Air and surface shipment.

Class 1 - 5 gallon.
Class 2 - 15 gallon.
Class 2A - 15 gallon.
Class 3 - 30 gallon.
Class 4 - 55 gallon.

2. APPLICABLE DOCUMENTS

2.1 The following documents, of the issues in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

Federal Specifications:

TT-E-485 - Enamel; Semigloss, Rust-Inhibiting.
TT-P-636 - Primer Coating; Alkyd, Wood and Ferrous Metal.

Federal Standards:

Fed. Test Method Std. No. 101 - Preservation, Packaging, and Packing Materials:
Test Procedures.
Fed. Test Method Std. No. 141 - Paint, Varnish, Lacquer, and Related Materials;
Methods of Inspection, Sampling, and Testing.
Fed. Std. No. 123 - Marking for Shipment (Civil Agencies)
Fed. Std. No. 595 - Colors.

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(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

(Single copies of this specification and other Federal Specifications required by activities outside the Federal Government for bidding purposes are available without charge from Business Service Centers at the General Services Administration Regional Offices in Boston, New York, Washington, DC, Atlanta, Chicago, Kansas City, MO, Fort Worth, Denver, San Francisco, Los Angeles, and Seattle, WA.

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications and Standards from established distribution points in their agencies.)

Military Specification:

MIL-D-1000 - Drawings, Engineering and Associated Lists.

Military Standards:

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
 MIL-STD 129 - Marking for Shipment and Storage.
 MIL-STD-147 - Palletized and Containerized Unit Loads.
 MIL-STD-831 - Test Reports, Preparation Of.

(Copies of Military Specifications and Standards required by supplies in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

Laws and Regulations:

49 CFR 100-199 - Hazardous Materials Board.

(The Code of Federal Regulations (CFR) and the Federal Register (FR) are for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20406. When indicated, reprints of certain regulations may be obtained from the Federal agency responsible for issuance thereof.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless a specific issue is identified, the issue in effect on date of invitation for bids or request for proposal shall apply.

National Motor Freight Traffic Association, Inc., Agent:

National Motor Freight Classification.

(Application for copies should be addressed to the American Trucking Association, Inc., Tariff Order Section, 1616 P Street, NW, Washington, DC 20036.)

Uniform Classification Committee, Agent:

Uniform Freight Classification

(Application for copies should be addressed to the Uniform Classification Committee, Room 1106, 222 South Riverside Plaza, Chicago, IL 60606.)

3. REQUIREMENTS

3.1 First article. This specification provides for first article examination and testing of type II composite containers as specified in 4.3.1.1 (see 6.2).

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3.2 Sample containers. First article sample composite containers and other containers of both types I and II, subjected to destructive inspection, shall not be included in the quantity required to fulfill the contract.

3.3 Construction. All containers shall consist of a steel drum overpack with a polyethylene insert. The drum shall provide a snug fit for the insert in such a manner as to avoid buckling, wrinkling or suspension and strain on the insert by insert closure protruding through openings in and secured to the drum cover. Drum interiors shall be free of projections, burrs or edges that might cause damage to plastic inserts and shall be free of grease, oil or other foreign matter.

3.3.1 Insert protection. Means shall be provided to protect the insert and insert closure against damage from forces due to pressurization and rough handling.

3.4 Steel drums. The steel drums shall meet the requirements of the DOT specifications listed in table I and the additional requirements of this specification.

TABLE I. Composite Container Requirements

Class	Polyethylene Insert		Metal Container				Insert Capacity (Gal)		
	Minimum Thickness	Department of Transportation Specification	Department of Transportation Specification	Minimum Thickness ³			Rated	Min.	Max.
				Body	Bottom	Covers			
Type I									
1	.010	2U	37P	26 GA	26 GA	24 GA ¹	5	5.2	5.45
2	.015	2U	37P	22 GA	22 GA	19 GA ¹	15	15.6	15.85
3	.015	2U	6D	19 GA	19 GA	19 GA	30	31.2	31.5
4	.015	2U	6D	18 GA	18 GA	18 GA	55	57.2	57.75
Type II									
1	.015	2U	6D	22 GA	22 GA	20 GA ²	5	5.2	5.45
2	.015	2U	6D	20 GA	20 GA	20 GA	15	15.6	15.85
2A	.030	2SL	6D	20 GA	20 GA	20 GA	15	15.6	15.85
3	.030	2SL	6D	19 GA	19 GA	19 GA	30	31.2	31.5
4	.040	2SL	6D	18 GA	18 GA	18 GA	55	57.2	57.75

¹Twenty (20) gage authorized.

²Heavier gage than 6D.

³Design and metal thickness of type II container, heads, and locking rings may be increased if necessary to meet the requirements of 3.6.4 when tested in accordance with 4.5.8.

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3.4.1 Vent holes.

3.4.1.1 Type I. Two vent holes, not exceeding 1/4-inch in diameter, are permitted diametrically opposite each other immediately above the double seam of the bottom chime or three holes not exceeding 3/16-inch in diameter on center 120° apart in the bottom head. Vent holes shall be provided with tight fitting polyethylene plugs.

3.4.1.2 Type II. Vent holes are not permitted in type II drums.

3.4.2 Bail ears. Bail ears for types I and II, class 1 drums shall be attached by welding or flush rivets. The internal surface at ear attachment points shall be smooth.

3.4.3 Covers. Covers for steel drums shall be fully removable. Lug covers may be used for type I, classes 1 and 2 drums.

3.4.3.1 Cover openings. The top head of type I drums shall have a maximum of two holes of suitable size to provide for protruding closures. Cover openings are not permitted in type II drums.

3.4.3.2 Cover gaskets. Standard commercial gaskets shall be provided for all type II drums. Gaskets are not required for type I drums.

3.4.3.3 Locking devices. Covers for all type I, including lug covers, and for type II, classes 1 and 2 shall be secured with a minimum 18 gage locking ring. Covers for type II, classes 3 and 4 shall be secured with a minimum 16 gage locking rings. Bolted locking rings shall be used.

3.4.4 Cleaning and phosphatizing. The interior and exterior surfaces of all drums and chime reinforcement shall be free of oil, dirt, rust scale and other foreign matter prior to phosphatizing. All sharp edges and metal splinters shall be removed. The phosphate treatment shall provide a uniform minimum phosphate deposit of 150 milligrams per square foot when zinc phosphate is used or 40 milligrams per square foot when iron phosphate is used. Phosphate deposit shall be determined as specified in 4.5.1.

3.4.5 Protective coatings.

3.4.5.1 Exterior protective coating. All exterior surfaces of the drum shall be coated with enamel conforming to the requirements of TT-E-485. Unless otherwise specified (see 6.2), the color shall be olive drab, No. 24087, Fed. Std. 595. The dry film coating thickness shall be a minimum of 0.0008 inch when tested as specified in 4.5.2. The coating shall show no evidence of flaking off or jagged edges when tested as specified in 4.5.3.

3.4.5.2 Interior protective coating. Interior surfaces of the drum shall be coated with a primer conforming to the requirements of TT-P-636.

3.5 Polyethylene inserts. Polyethylene inserts and closures shall meet the requirements of the DOT specifications listed in table I and the requirements of this specification.

3.5.1 Closures. Closures shall be as described in the following subparagraphs.

3.5.1.1 Type I, classes 1 and 2. Flexible spouts, accessible through the drum cover, which can be raised for pouring and then pushed back into the flush position are preferred. Closures without this feature shall be provided with pour spouts threaded to match the threads of the closure flange or other suitable means for pouring over the edge of the drum without leakage or spillage.

3.5.1.2 Type II, classes 1 and 2. The closure opening shall be a minimum of 1.5 inches and a maximum of 2.7 inches in diameter and shall be externally threaded. A screw cap or plug shall be used to achieve a leak proof closure. The insert shall be equipped with a spout or other means adequate for pouring contents over the edge of the drum without leakage or spillage.

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3.5.1.3 Types I and II, classes 3 and 4. A 2-inch N.P.T. primary closure and a 3/4-inch N.P.T. vent closure shall be provided for all class 3 and 4 inserts.

3.5.1.4 Dust covers. Inserts shipped without closures in place shall be provided with dust covers over the closure openings.

3.5.2 Insert capacity. The minimum capacity shall not be less than and the maximum capacity not more than indicated in table I when determined as specified in 4.5.4.

3.6 Performance.

3.6.1 Insert leakage. Inserts shall not leak when tested as specified in 4.5.5.1 for type I and 4.5.5.2 for type II.

3.6.2 Vibration. There shall be no leakage or loosening of components when the composite containers are tested as specified in 4.5.6.

3.6.3 15 psi pressure test (type II only). The composite container shall not leak when tested as specified in 4.5.7. Bulging of the drum cover and bottom shall be permitted only to the extent that it does not interfere with stacking of the containers.

3.6.4 30 psi pressure test (type II only). The composite container shall not leak when tested as specified in 4.5.8.

3.6.5 15 psi pressure test after exposure to temperature extremes (type II only). Composite containers shall meet the requirements of 3.6.3 after being tested as specified in 4.5.9.

3.6.6 Impact resistance. There shall be no leakage or interference with handling, storage or usage after testing as specified in 4.5.10.1 for type I, classes 1 and 2 or after testing as specified in 4.5.10.1 and 4.5.10.2 for type I, classes 3 and 4 and all type II composite containers.

3.7 Identification marking.

3.7.1 Steel drums. Type I, classes 1 and 2 shall be marked in accordance with the requirements of the Department of Transportation specification 37P. Type I, classes 3 and 4 and all type II drums shall be marked in accordance with the requirements of the Department of Transportation specification 6D. In addition, the following data shall be stencilled on the lower one-third of the sidewall in letters at least 1/4-inch in size:

Container conforms to PPP-C-1337, Type _____, Class _____

3.7.2 Inserts. Inserts shall be marked in accordance with the applicable Department of Transportation specification indicated in table I.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure that supplies and services conform to prescribed requirements.

4.2 Classification of inspection. The inspection requirements specified herein are classified as follows:

- (a) First article inspection.
- (b) Quality conformance inspection.

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4.3 First article inspection, type II only. The first article inspection shall consist of examination and tests for all the requirements of this specification. Unless otherwise specified (see 6.2), first article inspection shall be conducted in the presence of a Government representative designated by the contracting officer. Approval of the first article inspection samples does not preclude the requirements for performing the quality conformance inspection. First article examination and testing need not be repeated for the same type and class ordered within one year after initial examination and tests providing the design, materials and manufacturing processes have not been changed. A certified statement to this effect shall be submitted to the contracting officer with a copy of the reports and drawings of the last tests conducted. The Government reserves the right to require first article inspection when deemed necessary to assure conformance to this specification.

4.3.1 First article samples. First article samples shall include nine composite containers and six representative test panels for each class specified in the contract or purchase order. First article samples shall be produced using the same production processes, procedures, equipment and materials used in fulfilling the contract.

4.3.1.1 First article examination and testing. The nine composite containers shall be examined for the defects listed in 4.4.2.1. Examination for defects may be conducted prior to assembly of the composite containers. The first article samples shall then be tested as specified in table II. Failure to meet the specified requirements shall be cause for rejection. Unless otherwise specified (see 6.2), a first article sample container shall be forwarded to the procuring activity along with detail drawing(s) and test reports of the first article samples in conformance with MIL-STD-831, respectively. The container forwarded may be one of those used in conducting test numbers 4, 5, 6 and 7 of table II replacing only the insert with one representative of those used in fulfilling the contract.

TABLE II. First article testing^(a)

Test No.	Test	Requirement Paragraph	Test Paragraph	Test Specimen	Number Of Test Specimens To Be Tested
1	Phosphate Coating	3.4.4	4.5.1	1 Test Panel	3
2	Coating Thickness	4.3.5.1	4.5.2	1 Test Panel	3
3	Knife Test	3.4.5.1	4.5.3	1 Composite Container	2 ^(b)
4	Insert Capacity	3.5.2	4.5.4	1 Composite Container	2 ^(c)
5	Vibration	3.6.2	4.5.6	1 Composite Container	2 ^(c)
6	Insert Leakage	3.6.1	4.5.5.2	1 Composite Container	2 ^(c)
7	Insert Thickness	Table I	--- ^(d)	1 Composite Container	2 ^(c)
8	Impact Resistance	3.6.6	4.5.10.1	1 Composite Container	2
		3.6.6	4.5.10.2	1 Composite Container	2
9	15 psi Pressure Test	3.6.3	4.5.7	1 Composite Container	2 ^(e)
10	15 psi Pressure Test	3.6.5	4.5.9	1 Composite Container	2 ^(e)
11	30 psi Pressure Test	3.6.4	4.5.8	1 Composite Container	1

NOTES:

- (a) All requirements, with the exception of phosphate coating, are applicable to the test specimen. Each test specimen must meet the specified requirement for the containers to be considered satisfactory. For phosphate coating, the average of the results for the three test specimens shall meet the specified requirement.
- (b) The knife test may be conducted on any two of the composite containers used for performing the other tests or on two representative test panels.
- (c) The same two containers shall be used for performing test numbers 4, 5, 6, and 7 in the order given.
- (d) Thickness of the sidewall midway between the top and bottom, the sidewall near the closure and the bottom of the insert shall be determined using a micrometer with an accuracy and precision of ± 0.0005 inch. No individual measurement shall be less than specified in table I.
- (e) The same two containers shall be used for performing test numbers 7 and 8 in the order given.

4.4 Quality conformance. Quality conformance inspection shall consist of the examinations and tests listed in the subparagraphs of this section.

4.4.1 Inspection lot. A quality conformance inspection lot shall consist of all composite containers of one type and class manufactured in the same identifiable production period, by the same process under the same operating conditions using the same equipment and material and submitted for acceptance by one supplier at one time. The lot size, for determining the sample size, shall be expressed in units of the end item (number of composite containers) for examination and testing under 4.4.2.

4.4.2 Examination of the end items. Composite containers shall be examined for the defects listed in 4.4.2.1. The sample size shall be determined in accordance with MIL-STD-105 at an inspection level of S-4. The AQLs, expressed in defects per 100 units, shall be 2.5 for each listed defect.

4.4.2.1 Examination for defects. The composite containers shall be examined for the defects listed:

<u>Examine</u>	<u>Defect</u>
Ball ears Vent holes	Not attached as specified or not smooth (see 3.4.2). Diameter exceeds maximum specified. Number of vent holes more than specified. Vent holes not located as specified. Polyethylene plugs not provided or not tight fitting. Vent holes in type II drums. (see 3.4.1.1 and 3.4.1.2.)
Covers	Not fully removable; cover openings not aligned with insert closure (type I only); cover openings in type II drums. (See 3.4.3 and 3.4.3.1.)
Cover gaskets. (type II only)	Cover gaskets missing. (see 3.4.3.2.)
Locking devices	Thickness not as specified; bolted locking ring not used. (See 3.4.3.3.)
Insert closure	Not as specified. (See 3.5.1.)
Steel drums	Dent at seam, rivet or welded area; corrosion present; projections, burrs or edges in interiors; grease oil or foreign matter in interior. (See 3.3.)
Exterior coating	Not coated; color not as specified. (See 3.4.5.1.)
Interior coating	Not coated. (See 3.4.5.2.)
Markings	Not marked as required. (See 3.7.1 and 3.7.2.)

4.4.3 Quality conformance testing.

4.4.3.1 Type I. Three (for classes 1 or 2) and four (for classes 3 or 4) composite containers, selected at random from the inspection lot, and six representative test panels shall be tested as specified in table III. Failure to meet the specified requirements shall be cause for rejection of the lot.

4.4.3.2 Type II. Three type II composite containers, selected at random from the inspection lot, and six test panels shall be tested as specified in table IV. Failure to meet the specified requirements shall be cause for rejection of the lot.

TABLE III. Type I end item testing (a)

Test No.	Test	Requirement Paragraph	Test Paragraph	Test Specimen	Number Of Test Specimens To Be Tested
1	Phosphate Coating	3.4.4	4.5.1	1 Test Panel	3
2	Coating Thickness	3.4.5.1	4.5.2	1 Test Panel	3(b)
3	Knife Test	3.4.5.1	4.5.3	1 Composite Container	2(c)
4	Insert Capacity	3.5.2	4.5.4	1 Composite Container	2(c)
5	Impact Resistance				
	All Classes	3.6.6	4.5.10.1	1 Composite Container	1(c)
	Classes 3 and 4	3.6.6	4.5.10.2	1 Composite Container	1(c)
6	Insert Leakage	3.6.1	4.5.5.1	1 Composite Container	2(d)
7	Insert Thickness	Table I	---(e)	1 Composite Container	2(d)

NOTES:

- (a) All requirements, with the exception of phosphate coating, are applicable to the test specimen. Each test specimen must meet the specified requirement for the containers to be considered satisfactory. For phosphate coating, the average of the results for the three test specimens shall meet the specified requirement.
- (b) The knife test may be conducted on any two composite containers used for performing the other tests or two representative test panels.
- (c) The same containers shall be used for performing test numbers 4 and 5 in the order given.
- (d) The same containers shall be used for performing test numbers 6 and 7 in the order given.
- (e) Thickness of the sidewall midway between the top and bottom, the sidewall near the closure and the bottom of the insert shall be determined using a micrometer with a precision and accuracy of ± 0.0005 inch. No individual measurement shall be less than specified in table I.

TABLE IV. Type II end item testing^(a)

Test No.	Test	Requirement Paragraph	Test Paragraph	Test Specimen	Number Of Test Specimens To Be Tested
1	Phosphate Coating	3.4.4	4.5.1	1 Test Panel	3
2	Coating Thickness	3.4.5.1	4.5.2	1 Test Panel	3
3	Knife Test	3.4.5.1	4.5.3	1 Composite Container	2(b)
4	Insert Capacity	3.5.2	4.5.4	1 Composite Container	3(c)
5	Insert Leakage	3.6.1	4.5.5.2	1 Composite Container	3(c)
6	15 psi Pressure Test	3.6.3	4.5.7	1 Composite Container	3(c)
7	Insert Thickness	Table I		1 Composite Container	2(d), (e)

NOTES:

- (a) All requirements, with the exception of phosphate coating, are applicable to the test specimen. Each test must meet the specified requirement for the containers to be considered satisfactory. For phosphate coating, the average of the results for the three test specimens shall meet the specified requirement.
- (b) The knife test may be conducted on any two containers used for performing the other tests or on two representative test panels.
- (c) The same three containers shall be used for performing test numbers 4, 5, and 6 in the order given.
- (d) Insert thickness may be determined on inserts selected at random prior to assembly of the composite containers.
- (e) Thickness of the sidewall midway between the top and bottom, the sidewall near the closure and the bottom of the insert shall be determined using a micrometer with a precision and accuracy of 0.0005 inch. No individual measurement shall be less than specified in table I.

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4.5 Test methods.

4.5.1 Phosphate coating. The weight of phosphate coating per unit area shall be determined in accordance with method 6022, Test for Weight of Phosphate Coating, of Fed. Test Method Std. 101. The average of the test results for three test panels shall be taken as the coating weight to determine compliance with 3.4.4.

4.5.2 Coating thickness. Coating thickness shall be determined in accordance with method 6181 of Fed. Std. No. 141 to determine compliance with 3.4.5.1.

4.5.3 Knife test. A furrow shall be made on the coated surface of the steel drum or representative test panel with a knife blade held at an angle of 30 degrees and the removal of the coating film by this operation shall then be checked to determine compliance with 3.4.5.1.

4.5.4 Insert capacity. The capacity of the assembled composite container shall be determined in accordance with method 5010 of Fed. Test Method Std. 101 to determine compliance with 3.5.2.

4.5.5 Insert leakage.

4.5.5.1 Type I. The insert shall be inflated to 1-1/2 psig at $75^{\circ} \pm 15^{\circ}\text{F}$. Inflation shall be accomplished through the side wall of the insert, and not the closures, so as to determine leakage of the closures as well. After allowing thirty seconds for equilibrium to be reached, the pressure shall be held for two minutes. The pressure shall be determined using a gage with a precision and accuracy of 1/10 psi. There shall be no drop in pressure during the two minute test period to determine compliance with 3.6.1.

4.5.5.2 Type II. The insert shall be inflated to a minimum of 3 psig. Inflation shall be accomplished through the side wall of the insert, and not the closure, so as to determine leakage of the closure as well. The inserts shall then be submerged in water, at $75^{\circ} \pm 15^{\circ}\text{F}$, for five minutes. The inserts shall show no evidence of leakage to determine compliance with 3.6.1. An alternate leak test method may be used when the capability of the method is demonstrated to the satisfaction of the Government inspector.

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4.5.6 Vibration test. The composite containers shall be filled with water to 98 percent capacity and closed as for shipment. The containers shall be placed on a vibration table and anchored in such a manner that all horizontal motion shall be restricted and only vertical motion allowed. The test shall be conducted for 1 hour using an amplitude of 1-inch at a frequency that causes the test containers to be raised from the floor of the table to such a degree that a 1/16-inch metal strip can be passed between the container and table. The containers shall be examined for leakage and security of components to determine compliance with 3.6.2.

4.5.7 Fifteen psi pressure test, type II only. A hole of appropriate size shall be drilled in the sidewall of the steel drum, but not on the seam, to allow access to a pressure fitting connected to the sidewall of the polyethylene insert. With the empty container assembled as for shipment and submerged in water, a minimum internal air pressure of 15 psig shall be applied to the insert and maintained for five minutes. During and at the end of the five minute period, the container shall be examined for leaks to determine compliance with 3.6.3. The appearance of bubbles at the start of pressurizing and at the rate of two bubbles or less per minute thereafter shall not be construed as leakage but merely as the escape of air entrapped between the polyethylene insert and the wall of the steel drum. Equally efficient means of testing are authorized upon demonstration and proof of satisfactory tests.

4.5.8 Thirty psi pressure test, type II only. A hole of appropriate size shall be drilled in the sidewall of the steel drum, but not on the seam, to allow access to a pressure fitting connected to the polyethylene insert. With the container assembled as for shipment, a minimum internal hydrostatic pressure of 30 psig shall be applied to the insert and maintained for five minutes to determine compliance with 3.5.4. (Note: Barrier protection for safety of personnel is recommended.)

4.5.9 Fifteen psi pressure test at temperature extremes, type II only. The empty test containers, assembled as for shipment and prepared for pressurizing as specified in 4.5.7, shall be tested as specified in the following subparagraphs.

4.5.9.1 Low temperature. The containers shall be subjected to a temperature of minus $65^{\circ} \pm 3^{\circ}\text{F}$ and a minimum internal air pressure of 15 psig applied and held for 10 minutes. The presence shall then be released and the container allowed to come to room temperature. This procedure shall be repeated four more times for a total of five complete cycles.

4.5.9.2 High temperature. The procedure specified in 4.5.9.1 shall be repeated except that the container shall be subjected to $115^{\circ} \pm 3^{\circ}\text{F}$.

4.5.9.3 Fifteen psi pressure test. After completion of the tests specified in 4.5.9.1 and 4.5.9.2, the containers shall be tested as specified in 4.5.7 to determine compliance with 3.6.5.

4.5.10 Drop test.

4.5.10.1 Room temperature. The composite containers shall be filled with water to 98 percent capacity and assembled as for shipment. The containers shall be dropped from a height of 4 feet onto a solid surface of concrete, stone or steel of sufficient mass to absorb the impact without significant deflection, so as to strike diagonally on the bottom chime. The same containers shall then be suspended with the heads containing the closures downward and dropped from a height of 4 feet onto solid surface so that the part of the top chime which strike the surface is nearest the closure. After testing, the containers shall be visually examined for leaks and handling characteristics to determine compliance with 3.6.6.

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4.5.10.2 Low temperature. The composite containers shall be filled to 98 percent capacity with a solution compatible with polyethylene and which remains liquid at 0°F. The containers shall be dropped as described in 4.5.10.1 when container and contents are at slightly below 0°F to determine compliance with 3.6.6.

5. PREPARATION FOR DELIVERY

5.1 Packaging. Not applicable.

5.2 Packing. Packing shall be level A, B, or C, as specified (see 6.2).

5.2.1 Level A. When specified by the procuring activity, the assembled composite containers shall be packed in open crates or by applicable palletization conforming to MIL-STD-147. The total height of the pack and pallet shall not exceed 54 inches.

5.2.2 Level B or C. The assembled composite containers shall be packed to assure that the shipment arrives in satisfactory condition at destination. The shipment shall conform to the Uniform Freight Classification or National Motor Freight Classification, as applicable.

5.3 Marking. Markings for the empty containers shall be applied to tags or labels which are easily removed.

5.3.1 Civil agencies. In addition to any special marking required by the contract or order (see 6.2), shipping containers shall be marked in accordance with Fed. Std. No. 123.

5.3.2 Military agencies. In addition to any special marking required by the contract or order (see 6.2), shipping containers shall be marked in accordance with MIL-STD-129.

6. NOTES.

6.1 Intended use. This specification covers containers intended to be used as follows:

- Type I. Domestic, Surface shipment only.
- Type II. Overseas, Air and Surface shipment

Containers are intended for shipment of liquid chemicals that do not physically or chemically affect or are not affected by polyethylene. These containers are not intended to be used for the shipment of concentrated hydrochloric acid or liquids with an absolute vapor pressure exceeding 16 psi at 115°F.

6.2 Ordering data. Purchasers should select the preferred options permitted and include the following information in procurement documents:

- (a) Title, number, and date of this specification.
- (b) Type and class of composite container required.
- (c) Quantity.
- (d) Name and address of first article testing laboratory, if applicable.
- (e) Whether first article inspection is required (see 4.3).

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- (f) Whether first article samples and data are required (see 4.3.1.1).
- (g) Level of packing required (see 5.2).
- (h) Markings required (see 5.3).
- (i) Whether palletizing is required (see 5.2.1).
- (j) Color required if other than olive drab (see 3.4.5.1).

MILITARY CUSTODIANS:

Army - GL
Navy - SA
Air Force - 69

CIVIL AGENCY COORDINATING ACTIVITY:

GSA-FSS

Review activities:

Air Force - 71, 70, 84, 85
Navy - AS
Defense Supply Agency - GS
Army - EA, SM

User activities:

Navy - EX, OS, SH
Army - MI,

Preparing activity:

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Project 8115-0268

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