

**METRIC**

MIL-C-24782

23 July 1993

## MILITARY SPECIFICATION

### COATING, POWDERED FLUOROPOLYMER FOR USE ON HIGH PRESSURE GAS FLASK INTERIORS

This specification is approved for use by all Departments and Agencies of the Department of Defense.

#### 1. SCOPE

1.1 Scope. This specification covers a powdered fluoropolymer coating of high pressure air flask interiors. Only one classification of coating is covered by this specification.

#### 2. APPLICABLE DOCUMENTS

##### 2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

#### SPECIFICATIONS

##### FEDERAL

BB-N-411 - Nitrogen, Technical.

##### MILITARY

MIL-H-5606 - Hydraulic Fluid, Petroleum Base, Aircraft, Missile and Ordnance.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Naval Sea Systems Command, SEA 03Q42, Department of the Navy, Washington, DC 20362-5101 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 8010

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

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**MILITARY (Continued)**

- MIL-F-22606 - Flask, Compressed Gas and End Plugs for Air, Oxygen and Nitrogen.
- MIL-L-17331 - Lubricating Oil, Steam Turbine and Gear, Moderate Service.

**STANDARDS****FEDERAL**

- FED-STD-313 - Material Safety Data, Transportation Data and Disposal Data for Hazardous Materials Furnished to Government Activities.
- FED-STD-595 - Colors Used in Government Procurement.

**MILITARY**

- MIL-STD-147 - Palletized Unit Loads.

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, BLDG. 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.2 Non-Government publications. The following document(s) form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation (see 6.2).

**AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)**

- A 336 - Standard Specification for Steel Forgings, Alloy, for Pressure and High-Temperature Parts. (DoD adopted)
- B 117 - Standard Test Method for Salt Spray (Fog) Testing. (DoD adopted)
- D 522 - Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings. (DoD adopted)
- D 570 - Standard Test Method for Water Absorption of Plastics. (DoD adopted)
- D 785 - Standard Test Method for Rockwell Hardness of Plastics and Electrical Insulating Materials. (DoD adopted)
- D 1729 - Standard Practice for Visual Evaluation of Color Differences of Opaque Materials. (DoD adopted)
- D 2794 - Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact). (DoD adopted)
- D 3652 - Standard Test Method for Thickness of Pressure-Sensitive and Gummed Tapes. (DoD adopted)
- D 3960 - Standard Practice for Determining Volatile Organic (VOC) Content of Paints and Related Coatings.

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

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## STEEL STRUCTURES PAINTING COUNCIL (SSPC)

## SP 10 - Near-White Blast Cleaning. (DoD adopted)

(Application for copies should be addressed to the Steel Structures Painting Council, 4400 Fifth Avenue, Pittsburgh, PA 15213.)

(Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

## 3. REQUIREMENTS

3.1 First article. When specified (see 6.2), a sample shall be subjected to first article inspection (see 6.3) in accordance with 4.3.

3.2 Material. The raw material shall be a pigmented fluoropolymer resin meeting the requirements of this specification (see 4.4.3.1). The resin shall be capable of being applied and removed in a manner that would not be injurious to the flask (see 6.2.1).

3.2.1 Prohibited materials. The formulations of the fluoropolymer shall contain no lead compounds, chromate or cadmium pigments, or any carcinogenic or suspected carcinogenic compounds under any conditions experienced during application or removal.

3.2.1.1 Mercury. Mercury-bearing instruments or equipment which may cause contamination shall not be used in the manufacture or application of the fluoropolymer resin nor shall such instruments be utilized in the testing of the final coating. In the event of suspected mercury contamination or lack of mercury free material certifications, testing may be conducted to determine if excessive contamination is present. Surface contamination of the final coating shall not exceed 0.01 milligrams per cubic meter.

3.2.2 Material safety data sheet (MSDS). The contracting activity shall be provided a material safety data sheet at the time of contract award. The MSDS shall be provided in accordance with the requirements of FED-STD-313. The MSDS shall be included with each shipment of the material covered by this specification (see 6.4).

3.2.3 Disposal requirement. Waste resin and removed coating shall be capable of being disposed of in ordinary landfill. If dusting is a landfill problem, disposal shall be in accordance with both the state and federally imposed Environmental Protection Agency (EPA) regulations.

3.2.4 Toxic products. The material shall have no adverse effect on the health of personnel when used for its intended purpose. Questions pertinent to this effect shall be referred by the contracting activity to the appropriate departmental medical service who will act as an advisor to the contracting agency.

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3.2.5 Volatile organic compounds. The volatile organic compound portion of the coating shall conform to the following:

- (a) Volatile organic compounds (VOC) shall not exceed 200 grams per liter (1.7 pounds per gallon). VOC shall be determined as specified in 4.6.18.
- (b) The solvent shall not contain any chlorinated hydrocarbons.

3.3 Coating characteristics. The material shall be a finely ground powder of a one-component compounded material consisting of a resin, colorants, and flow control agents. When applied to a substrate and subjected to a heating cycle, as required by the contractor, the material shall melt, fuse, and subsequently cure to form a coating which shall meet or exceed all the requirements of this specification. The contractor shall specify the application procedure, and health and safety information necessary to ensure optimum performance.

3.3.1 Application conditions. The powder fluoropolymer shall be applied to air flask interiors and cured under the conditions recommended by the manufacturer. At no time shall the curing temperature exceed 329 degrees Celsius ( $^{\circ}\text{C}$ ) (625 degrees Fahrenheit ( $^{\circ}\text{F}$ )).

3.3.2 Flask preparation. Prior to the application of the fluoropolymer coating, the flask interior shall be cleaned and free of mill scale, rust, manufacturing oils and other dirt or debris that would interfere with the application of a protective coating. Cleaning shall be in accordance with MIL-F-22606 and as required by the coating applicator to achieve a satisfactory coating. At no time during the cleaning process shall the flask be heated in excess of 121 $^{\circ}\text{C}$  (250 $^{\circ}\text{F}$ ).

3.3.2.1 Flask. The flasks to be coated under this specification shall be in accordance with MIL-F-22606.

3.4 Film properties. The powder fluoropolymer coating shall be applied by established commercial methods applicable to fluoropolymer powder over abrasive blasted alloy steel. The finished coating shall have a total dry film thickness sufficient to pass all required tests of this specification. The coating shall be carbon, blister and pinhole free as determined by the spark test. Coating thickness shall be tested with a nondestructive gauge in predetermined strategic locations.

3.5 Color. The cured film of applied powder coating shall be a semigloss gray no darker than FED-STD-595 color chip 26493 through white approximating color chip 27875, as specified (see 4.6.4 and 6.2).

3.6 Flexibility. The cured film of applied powder coating shall show no cracking or loss of adhesion in the bend area (see 4.6.5).

3.7 Adhesion. The cured film of applied powder coating shall show no lifting, flaking, or other signs of loss of adhesion (see 4.6.6).

3.8 Thermal shock resistance. The cured film of applied powder coating shall withstand 10 cycles between  $74 \pm 2^{\circ}\text{C}$  (165  $\pm 4^{\circ}\text{F}$ ) and minus  $54 \pm 2^{\circ}\text{C}$  (minus 65  $\pm 4^{\circ}\text{F}$ ) without cracking, checking, or disbonding (see 4.6.7).

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3.9 Impact resistance. The cured film of applied powder coating shall provide a coating that will have a direct and reverse impact resistance of not less than 18 and 2.8 newton meters (165 and 25 inch pounds), respectively, without forming a holiday when inspected visually with an eight-power magnifying glass (see 4.6.8).

3.10 Salt spray resistance. The cured film of the applied powder shall not blister, wrinkle, or show loss of adhesion when subjected to the salt spray test (see 4.6.9).

3.11 Fluid resistance. The cured film shall not blister, wrinkle, or show loss of adhesion when immersed in the following fluids (see 4.6.10).

- (a) Water.
- (b) Lube oil.
- (c) Hydraulic oil.

3.12 Water absorption. The coating shall have a water absorption of less than 0.01 percent when tested as specified in 4.6.11.

3.13 Flammability. The coating shall not support combustion when tested as specified in 4.6.12.

3.14 Rockwell hardness. The coating shall have a Rockwell hardness value of 65 minimum to 100 maximum on the R-scale when measured as specified in 4.6.13.

3.15 Breathing air certification. Sample gas removed from a flask after a period of storage at the working pressure of the flask shall certify the flask as suitable for breathing purposes when tested as specified in 4.6.14.

3.16 Rapid decompression. The coating shall not crack, chip, flake, or otherwise come off the interior surface of an air flask when tested as specified in 4.6.15.

3.17 Coating continuity. Flasks shall have the fluoropolymer coating tested for continuity using the spark test (see 4.6.17). There shall be no flaws in the coating detected by this test.

3.18 Inerting. After completion of the coating continuity test of 3.17, the flask shall be purged with clean dry nitrogen in accordance with BB-N-411. Shipping caps shall be installed and the flask inerted to approximately 25 pounds per square inch (lb/in<sup>2</sup>) with clean dry nitrogen.

#### 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor 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 this specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

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4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of the manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

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

- (a) First article inspection (see 4.3).
- (b) Quality conformance inspection (see 4.4).

4.3 First article inspection. First article inspection shall consist of the examinations and tests as specified in table I. Eight test panels prepared in accordance with 4.5, one coated flask, and two liters of powdered resin shall constitute the first article.

TABLE I. First article and quality conformance.

Test	Require- ment	Test method	First article sample	Quality conformance sample
Fluoropolymer resin	3.2	4.6.16	Resin	Resin
Solvent (VOC)	3.2.5	4.6.18	Resin	Resin
Film properties	3.4	4.6.2	One panel and flask	Flask
Thickness	3.4	4.6.3	One panel and flask	Flask
Color (ASTM D 1729)	3.5	4.6.4	One panel	Flask
Flexibility (ASTM D 522)	3.6	4.6.5	One panel	--
Adhesion (ASTM D 3652)	3.7	4.6.6	One panel	One panel
Thermal shock	3.8	4.6.7	Flask	--
Impact resistance (ASTM D 2794)	3.9	4.6.8	One panel	--
Salt spray (ASTM B 117)	3.10	4.6.9	One panel	--
Fluid resistance	3.11	4.6.10	One panel	--
Water absorption (ASTM D 570)	3.12	4.6.11	One panel	--
Flammability	3.13	4.6.12	One panel	One panel
Rockwell hardness (ASTM D 785)	3.14	4.6.13	One panel	--
Breathing air certification	3.15	4.6.14	Flask	--
Rapid decompression	3.16	4.6.15	Flask	--
Spark test	3.17	4.6.17	One panel and flask	One panel and flask

4.4 Quality conformance inspection. Quality conformance inspection shall consist of the examination and tests as specified in table I.

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4.4.1 Lot. For the purpose of quality conformance inspection, a lot shall be as defined in 4.4.1.1 and 4.4.1.2.

4.4.1.1 Powdered fluoropolymer. A lot shall consist of all powdered material of the same formula designation from a single, uniform batch manufactured and offered for delivery at one time. The addition of any substance to a batch shall constitute a new lot.

4.4.1.2 Coated flasks. A lot shall consist of all fluoropolymer coated flasks offered for delivery at one time.

4.4.2 Quality conformance inspection sampling. As a minimum, the contractor shall randomly select samples from each lot and inspect them as specified in table I (see 6.5). For thickness testing, sample sizes shall be as listed in table II. For spark testing, inspection sampling shall not be used; all flasks in the lot shall be tested.

TABLE II. Quality conformance inspection samples for coating thickness test.

Lot size	Sample size
2 to 5	All
6 to 50	5
51 to 90	7
91 to 150	11
151 to 280	13
281 to 500	16

4.4.3 Quality conformance tests.

4.4.3.1 Powdered fluoropolymer. Quality conformance tests on samples of powdered fluoropolymer for individual lots shall consist of the examination as specified in 4.6.16.

4.4.3.2 Coated flasks. Coated flasks shall be 100 percent inspected for coating inconsistencies by the spark test (see 4.6.17).

4.5 Test panels. The test panel material, surface preparation, and test panel coating application shall be as specified in 4.5.1 through 4.5.3.

4.5.1 Test panel material. Unless otherwise specified (see 6.2), test panels shall be prepared from sheet steel in accordance with ASTM A 336, cold rolled. Unless otherwise specified (see 6.2), panels shall be not less than 100 by 150 by 3 mm (4 by 6 by 0.125 inches). Panels for the flexibility test shall be 25 by 150 by 0.75 mm (1 by 6 by 0.03 inches).



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4.5.2 Test panel and flask surface preparation. Unless otherwise specified herein, the panels and flasks shall be cleaned in solvent (xylene and isopropanol, one to one ratio by volume), rinsed in clean solvent, and dried. The entire panel shall be abrasive blasted using any suitable equipment and abrasive blasting material. The abrasive materials shall be free from oil, grease, dirt, water, or other contaminants that would impair the coatability of the test panel surface. The test panels shall be blasted clean to a near-white metal in accordance with SSPC SP 10. After blasting, the panels shall be cleaned by using clean, dry, compressed air, a vacuum, or solvent. (NOTE: Minimum panel thickness which can be blasted effectively without deformation is 16-gauge.) Anchor pattern for steel surfaces shall be 0.050 to 0.075 mm (2.0 to 3.0 mils) respectively.

4.5.3 Application methods. After surface preparation as specified in 4.5.2, the panels shall be kept free from fingerprints and rust. Application of the powder coating shall be accomplished not greater than 2 hours after cleaning, or the cleaned panels may be stored in clean toluene or a desiccator for not greater than 72 hours before coating. Unless otherwise specified (see 6.2), the coating shall be applied in accordance with the coating contractor's instructions (see 6.2.1). A dry film thickness shall be sufficient to pass all tests specified in section 4.

4.6 Tests. The coating test methods shall be as specified in 4.6.1 through 4.6.18.

4.6.1 Coating.

4.6.1.1 Test panels. The test panels shall be prepared and coated as specified in 4.5.2 and 4.5.3.

4.6.1.2 Test flask. The test flask interior shall be prepared and coated as specified in 4.5.2 and 4.5.3. The thread areas of the necks (flask openings) shall be coated along with the rest of the flask interior.

4.6.2 Film properties. The coated test panels and flasks shall meet the requirements as specified in 3.4 when visually examined. No magnification is required for this examination but the inspector shall wear corrective vision glasses if such have been prescribed for him.

4.6.3 Thickness. Coating thickness shall be measured with a non-destructive gauge. Coating thickness on the test panels shall be measured on the longest centerline of the panel at two locations approximately 25 mm (1 inch) from the shortest panel centerline and at four locations approximately 15 mm (0.6 inch) from the edge of the panel. Coating thickness on finished flasks shall be measured every 300 mm (12 inches) along the flask beginning with the tangent of the hemispherical end and flask sidewall. Four measurements shall be made at each 300 mm location: top, bottom, and each side. Top and bottom are relative to flask position in the curing oven.

4.6.4 Color. Panels and flasks shall be prepared and coated as specified in 4.5 and 4.6. The color shall meet the requirements as specified in 3.5. Color shall be a general color match when tested in accordance with ASTM D 1729.



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4.6.5 Flexibility. Three panels, prepared and coated as specified in 4.6.1.1 and cured as applicable, shall be bent 180 degrees over a 12.5-mm (1/2-inch) mandrel in accordance with ASTM D 522. The panels shall be visually examined immediately to determine conformance to the requirements as specified in 3.6.

4.6.6 Adhesion. Panels shall be prepared and coated as specified in 4.6.1.1. Two parallel scratches shall be made through the coating to each substrate 25 mm (1 inch) apart, and not less than 50 mm (2 inches) long, using a stylus. A 25 mm (1 inch) wide strip of masking tape, in accordance with ASTM D 3652, shall be placed perpendicular to the scratches, adhesive side down. The tape shall be pressed down using two passes of a rubber-covered roller weighing 2.5 kilograms (5 pounds). The tape shall be removed immediately in one abrupt motion, exerting the pull at approximately 90 degrees to each panel. The coating shall be examined for conformance to the requirements as specified in 3.7.

4.6.7 Thermal shock. Panels shall be prepared and coated as specified in 4.6.1.1. Test panels shall be placed in an oven maintained at  $74 \pm 2^{\circ}\text{C}$  ( $165 \pm 4^{\circ}\text{F}$ ) for  $30 \pm 0.5$  minutes, then removed and quenched in cold tap water  $5$  to  $27^{\circ}\text{C}$  ( $40$  to  $80^{\circ}\text{F}$ ). The samples shall then be wiped dry and immediately plunged into a suitable low temperature environment held at  $\text{minus } 54 \pm 2^{\circ}\text{C}$  ( $\text{minus } 65 \pm 4^{\circ}\text{F}$ ) for  $10 \pm 0.5$  minutes. After each cycle, the panels shall be inspected for conformance to the requirements as specified in 3.8. Cycling shall be continued until the panel fails or until 10 cycles have passed.

4.6.8 Impact resistance. Panels 150 by 300 by 3 mm (6 by 12 by 0.125 inches) shall be prepared and coated as specified in 4.6.1.1. Test panels shall be impact tested in accordance with ASTM D 2794 using a 1.8-kilogram (4-pound) weight. The impact cup shall terminate in a hemispherical, 15.875-mm (5/8-inch) diameter nose. Backing plates shall not be used. The impact resistance shall be determined for conformance to the requirements as specified in 3.9.

4.6.9 Salt spray resistance. Panels shall be prepared, cleaned, and coated as specified in 4.6.1.1. Test panels shall be exposed in accordance with ASTM B 117. Exposure time shall be not less than 3000 hours for steel substrates. The panels shall then be examined for conformance to the requirements as specified in 3.10.

4.6.10 Fluid resistance properties. The fluid resistance properties shall be as specified 3.11 when tested as follows.

4.6.10.1 Water immersion test. Panels shall be prepared and coated as specified in 4.6.1.1. Half of each panel shall be immersed in water for 48 hours. After removal from the water, each panel shall be examined immediately to verify conformance to the requirements as specified in 3.11.

4.6.10.2 Hydrocarbon immersion test. Panels shall be prepared and coated as specified in 4.6.1.1. Half of the panels shall be immersed in lube oil in accordance with MIL-L-17331. The panels shall be examined after 3, 10, and 30 days for conformance to the requirements as specified in 3.11.

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4.6.10.3 Hydraulic fluid immersion test. Panels shall be prepared and coated as specified in 4.6.1.1. Half of the panels shall be immersed in hydraulic fluid in accordance with MIL-H-5606. The panels shall be examined after 3, 10, and 30 days for conformance to the requirements as specified in 3.11.

4.6.11 Water absorption. Two panels, 150 by 300 by 3 mm (6 by 12 by 0.125 inches) shall be prepared and coated as specified in 4.6.1.1. Panels shall be conditioned and immersed for 24 hours in accordance with ASTM D 570. Water absorption shall meet the requirements as specified in 3.12.

4.6.12 Flammability. One panel 150 by 300 by 3 mm (6 by 12 by 0.125 inches) shall be prepared and coated as specified in 4.6.1.1 and shall be mounted with the 300-mm dimension vertical. A torch shall be applied to an area in the lower 1/3 of the panel. The torch shall be removed after 5 seconds of ignition are observed. The coated panel shall be non-igniting or self-extinguishing to comply with 3.13.

4.6.13 Rockwell hardness. One panel 150 by 300 by 3 mm (6 by 12 by 0.125 inches) shall be tested in accordance with ASTM D 785 for compliance with 3.14.

4.6.14 Toxicity. Manufacturers of powdered fluoropolymer resins for use as air flask internal coatings shall disclose the formulation of their product(s) to the Naval Medical Command, MEDCOM 42, Washington, DC 20372. The disclosure of proprietary information, which shall be held in confidence by the Naval Medical Command, shall include; the name, formula, and approximate percentage by weight and volume of each ingredient in the product; the results of any toxicological testing of the product; identification of pyrolysis products; and any such other information as may be needed to permit an accurate appraisal of any toxicity problem associated with the handling, storage, application, use, or disposal of the material.

4.6.15 Rapid decompression. After the gas sample has been removed for the off-gassing analysis (see 4.6.14), and the flask is still at its rated working pressure, the valve on the end of the flask shall be opened to its fullest position allowing the pressurized gas to bleed down as rapidly as possible. After decompression, the coating on the flask interior shall be examined to determine compliance with 3.16. During the blowdown, the flask shall be firmly secured to a rigid foundation.

4.6.16 Fluoropolymer resin examination. Each lot of fluoropolymer resin shall be examined for uniformity of resin size and color (see 3.2 and 3.5).

4.6.17 Continuity spark test. The interior surface of all flasks shall be 100 percent tested with a 5000 volt direct current (dc) spark tester. The test is 5000 volt dc pulsed at 35 hertz (Hz). The test unit shall contain a power limiter which shall be activated immediately upon flaw (pinhole) detection. The power limiter limits current flow to a few microamps so as not to harm the substrate or coating. Compliance with 3.17 is no flaws detected. (The Elcometer Holitector Model DR-2175 detector, or equal, may be used for this test.)

4.6.18 Volatile organic compounds. The VOC in the coating shall be determined in accordance with ASTM D 3960. The VOC content of the coating shall be as specified in 3.2.5 and table I.

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## 5. PACKAGING

(The packaging requirements specified herein apply only for direct Government acquisition.)

5.1 Packing. Packing shall be levels A, B, or C as specified (see 6.2).

5.1.1 Levels A and B. Flasks of like types may be strapped to pallets in such a manner as to permit the use of lifting devices and material handling equipment. MIL-STD-147 provides guidance for palletized load but is not mandatory. Large curved and straight flasks may be shipped without pallets but must be blocked and braced in such a way as to prevent shifting during transit.

5.1.2 Level C. Packing shall be accomplished in a manner which will ensure acceptance by common carrier and shall afford protection against physical and mechanical damage from handling during direct shipment from the supply source to the using activity. The method of packing shall conform to carrier regulations as applicable to the mode of transportation.

5.2 Marking. In addition to any special marking required (see 6.2), marking of flasks and palletized loads shall be composed of the following information:

- (a) Item description.
- (b) Quantity of flasks.
- (c) Gross weight and cube.
- (d) Contract number or purchase order number.
- (e) Name and address (including zip code) of the contractor. When the supplies are shipped from a subcontractor, only the name and address of the prime contractor shall be used.
- (f) Ship-to address. This may be made by stenciling, silk-screening, labels, or tags. Military Label DD Form 1387 is preferred.

## 6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. This specification is intended to provide high pressure air flasks having a high grade durable interior coating of powdered fluoropolymer resins.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- (a) Title, number, and date of this specification.
- (b) Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.2).
- (c) Number of flasks to be coated internally:
  - 1. By size in cubic feet.
  - 2. By design, straight or curved.

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- (d) When first article inspection is required (see 3.1).
- (e) Federal color chip number (see 3.5).
- (f) Dimensions and material of test panels, if other than as specified (see 4.5.1).
- (g) Coating procedure, if other than contractor's instructions (see 4.5.3).
- (h) Level of packing required (see 5.1).
- (i) Special marking required (see 5.2).

6.2.1 The following suppliers have expressed an interest in coating flask interiors:

MARVCO PROCESS, for information contact:

Appliccoat, Inc.  
Two Sandown Circle  
Richmond, VA 23229  
(804) 741-2431  
(804) 446-6900

BLUE ARMORE, for information contact:

ISPA CO.  
2915 Wilmarco Avenue  
Baltimore, MD 21223  
(410) 664-4500

6.3 First article. When first article inspection is required, the contracting officer should provide specific guidance to offerors whether the item(s) should be a preproduction sample, a first article sample, a first production item, a sample selected from the first \_\_\_\_ production items, a standard production item from the contractor's current inventory (see 3.1), and the number of items to be tested as specified in 4.3. The contracting officer should also include specific instructions in acquisition documents regarding arrangements for examinations, approval of first article test results, and disposition of first articles. Invitations for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract. Bidders should not submit alternate bids unless specifically requested to do so in the solicitation.

6.3.1 First article waiver. Contracting officer may waive first article inspection if product has been satisfactorily manufactured for the last 5 years.

6.4 Materials Safety Data Sheets. Contracting officers will identify those activities requiring copies of completed Material Safety Data Sheets prepared in accordance with FED-STD-313. The pertinent Government mailing addresses for submission of data are listed in FED-STD-313.

6.5 Lot acceptance and rejection criteria. Detection of any nonconforming characteristic in any sample shall result in rejection of the entire lot. The contractor has the option of correcting the discrepancy, retesting, and resub-

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mitting a conforming lot or submitting a new lot which shall be inspected and tested as specified herein.

6.6 Subject term (key word) listing.

Adhesion  
Breathing air certification  
Flammability  
Flexibility  
Rapid decompression  
Spark test

Custodians:

Air Force - 99

Review activities:

Navy - AS

Air Force - 68, 84

Preparing activity:

Navy - SH

(Project 8010-0446)

# STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

## INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

1. DOCUMENT NUMBER MIL-C-24782		2. DOCUMENT DATE (YYMMDD) 23 JULY 1993	
3. DOCUMENT TITLE COATING, POWDERED FLUOROPOLYMER FOR USE ON HIGH PRESSURE GAS FLASK INTERIORS			
4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrites, if possible. Attach extra sheets as needed.)			
5. REASON FOR RECOMMENDATION			
6. PREPARING ACTIVITY			
a. NAME Technical point of contact: Mr. Carl Banks, SEA 03Y231		b. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON (703) 602-0367 (8) 332-0367	
c. ADDRESS (Include Zip Code) Commander Naval Sea Systems Command 2531 Jefferson-Davis Hyway		IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340	