

TT-P-1565B  
January 10, 1978  
~~SUPERSEDING~~  
Fed. Spec. TT-P-1565A  
October 7, 1971

FEDERAL SPECIFICATION  
PAINT, BOOT-TOPPING BLACK

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

1. SCOPE

1.1 Scope. This specification covers black boot-topping paint for wooden vessels. The paint is also satisfactory for use on steel.

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 Specification:

TT-R-266 - Resin, Alkyd Solutions.

Federal Standards:

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.

(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, Philadelphia, Washington, DC, Atlanta, Chicago, Kansas City, MO, Fort Worth, Houston, 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.)

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Military Standard:

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.

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

Code of Federal Regulations:

49 CFR 178 - Department of Transportation (DOT) Shipping Container Specifications.

(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 20402. 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.

American Society for Testing and Materials (ASTM) Standards:

D 93 - Flash Point by Pensky-Martens Closed Tester.  
D 185 - Coarse Particles.  
D 209 - Pigment, Lampblack.  
D 476 - Pigment, Titanium Dioxide.  
D 478 - Pigment, Zinc-Yellow (Zinc Chromate), Dry.  
D 523 - Specular Gloss.  
D 562 - Consistency of Paints Using The Stormer Viscosimeter.  
D 563 - Phthalic Anhydride Content of Alkyd Resins and Resin Solutions.  
D 600 - Liquid Paint Driers.  
D 1210 - Fineness of Dispersion of Pigments in Vehicle System.  
D 1296 - Odor of Volatile Solvents and Diluents.  
D 1394 - White Titanium Pigments Chemical Analysis.  
D 1475 - Weight per Gallon.  
D 1542 - Rosin and Derivatives.  
D 1729 - Visual Evaluation of Color Differences of Opaque Materials.  
D 1849 - Package Stability of Paint.  
D 2369 - Volatile content of Paint.

(Application for copies should be addressed to the American Society for Testing and Materials, 1910 Race Street, Philadelphia, PA 19103.)

National Motor Freight Traffic Association, Inc., Agent:

National Motor Freight Classification.

(Application for copies should be addressed to the American Trucking Associations, Inc., Traffic Department, 1616 P Street, N.W., 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 Formula. Black boot-topping paint shall be prepared in accordance with the formula shown in table I, which is designated Navy Standard formula No. 3.

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TABLE I. Formula No. 3

Ingredients	Pounds per 100 gallons
Titanium dioxide (type II, ASTM D 476)	15.0
Zinc oxide (ASTM D 79)	62.0
Magnesium silicate, Pigment (ASTM D 605)	46.0
Zinc yellow (type II, ASTM D 478)	93.0
Lampblack (ASTM D 209)	46.0
Silica (ASTM D 604)	46.0
Alkyd resin solution (type I, class A, TT-R-266)	225.0
Phenolic varnish ingredient (TT-V-119)	264.0
Paint thinner (TT-T-291, type II, grade A)	134.0
Aromatic petroleum naphtha (ASTM D 839)	14.0
Liquid Paint Driers (ASTM D 600)	27.4

3.2 Quantitative requirements. The paint shall conform to the quantitative requirements shown in table II when tested as specified in table III.

TABLE II. Quantitative requirements

Characteristics	Minimum	Maximum
Pigment, percent by weight of paint	30	34
Volatiles, percent by weight of paint	31	35
Nonvolatile vehicle (calculate by difference), percent by weight	31	34
Phthalic anhydride (calculated on nonvolatile vehicle), percent by weight	11	----
Water, percent by weight of paint	----	0.5
Coarse particles and skins (as residue retained on standard No. 325 sieve), percent by weight of paint	----	0.5
Consistency, krebs units	70	80
Weight per gallon, pounds	9.4	10.0
Drying time		
Time of setting to touch, hours	----	2
Time of drying hard, hours	----	5
Fineness of grind	5	----
Flash point, °C	30	----
Zinc oxide, percent by weight of pigment	29	32
Titanium dioxide, percent by weight of pigment	4	6
Chromium trioxide, percent by weight of pigment	11	13

### 3.3 Qualitative requirements.

3.3.1 Condition in container. A freshly opened full container of the paint when tested as specified in table III shall be free from grit, seeds, skins, lumps, thickening or livering and shall show no more pigment settling or caking than can be readily reincorporated to smooth homogeneous state.

3.3.2 Storage stability of partially full container. The paint shall show no skinning when tested as specified in table III. After storage for 14 days as specified in table III, the paint shall show no livering, curdling, hard caking or tough gummy sediment, and shall remix readily to a smooth homogeneous state.

3.3.3 Phenolic resin. When tested as specified in table III, the paint shall show the presence of phenolic resin.

3.3.4 Rosin and rosin derivatives. Rosin and rosin derivatives shall not be present when tested as specified in table III.

3.3.5 Color. The color shall match standard No. 27038 of Fed. Std. No. 595 when tested as in 4.3.1.

3.3.6 Resistance to water immersion. There shall be no evidence of whitening, blooming, blistering, softening, or loss of adhesion when the paint is tested as specified in 4.3.2.

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3.3.7 Flexibility. The paint shall show no evidence of cracking when tested as specified in 4.3.3.

3.3.8 Compatibility with thinner. There shall be no evidence of incompatibility of any of the ingredients of the paint as received when tested as specified in 4.3.4.

3.3.9 Gloss. When tested as specified in 4.3.5 the paint shall have a 60° specular gloss greater than or equal to 30 percent and less than or equal to 50 percent.

3.4 Quantities. The paint shall be furnished in 1-quart, 1-gallon, 5-gallon, and 55-gallon quantities.

#### 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 as specified herein. Except as otherwise specified in the contract or 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.

4.2.1 Inspection of preparation for delivery. An inspection shall be made to determine whether the packaging, packing, and marking comply with the requirements of Section 5. Defects shall be scored in accordance with table IV. The sample unit shall be one shipping container fully prepared for delivery and selected at random. Sampling shall be in accordance with MIL-STD-105. The lot size shall be the number of shipping containers in the end item inspection lot. The inspection level shall be S-2 with an AQL of 40 defects per hundred units.

TABLE IV. Classification of preparation for delivery defects

Examine	Defects
Markings	Omitted; incorrect; illegible; improper size, location, sequence, or method of application.
Material	Any component missing or damaged or wrong type.
Workmanship	Inadequate application of components such as incomplete closure of container flaps, loose strapping, inadequate stapling, or distortion of container.

#### 4.2.2 Testing of the end item.

4.2.2.1 Lot. The paint shall be assembled into lots as specified in MIL-STD-105. In MIL-STD-105, the words "essentially the same conditions" shall be interpreted to mean as manufacturer's batch, which is defined as the end product of all raw materials mixed, blended, or processed in a single operation.

4.2.2.2 Sampling of the end item for tests. For the purposes of sampling, the lot shall be expressed in units of gallons. Samples from lots shall be taken in accordance with MIL-STD-105 using inspection level S-2 and an acceptable quality level (AQL) of 2.5.

4.3 Test methods. All tests shall be conducted in accordance with the methods specified in table III to determine compliance with the requirements of section 3. Unless otherwise specified, standard testing conditions are  $23 \pm 1^\circ\text{C}$  and a relative humidity of  $50 \pm 5$  percent. All test reports shall contain the individual values utilized in expressing the final result. Failure to pass any test, or noncompliance with any requirement shall be cause for rejection of the sample.

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TABLE III. Index

Characteristics	Requirement Reference	Applicable Tests		
		Fed. Test Method Std. No. 141	ASTM	Para. Ref.
Condition in container	3.3.1	3011	-----	-----
Storage stability of partially full container	3.3.2	3021	-----	-----
Phenolic resin	3.3.3	5141	-----	-----
Rosin and rosin derivatives	3.3.4	----	D 1542	-----
Color	3.3.5	----	D 1729	4.3.1
Resistance to water immersion	3.3.6	----	-----	4.3.2
Flexibility	3.3.7	----	-----	4.3.3
Compatibility with thinner	3.3.8	----	-----	4.3.4
Pigment	Table II	4021	-----	-----
Volatiles	Table II	----	D 2369	-----
Nonvolatile vehicle	Table II	4053	-----	-----
Phthalic anhydride	Table II	----	D 563	-----
Water	Table II	4081	-----	-----
Consistency	Table II	----	D 562	-----
Coarse particles	Table II	----	D 185	-----
Drying time	Table II	4061	-----	-----
Fineness of grind	Table II	----	D 1210	-----
Flash point	Table II	----	D 93	-----
Weight per gallon	Table II	----	D 1475	-----
Zinc oxide	Table II	7331	-----	-----
Chromium trioxide	Table II	7331	-----	-----
Titanium dioxide	Table II	----	D 1394	-----

4.3.1 Color. The color of the sample shall be determined in accordance with ASTM method D 1729. The panels for tests shall be prepared by a single draw down on a plain opaque white glass or chart that will deposit a dry film thickness of approximately 0.0762 mm. Allow 48 hours drying time at standard conditions before making the reading. Illuminant for the test shall be provided by a daylight source approximating the color and spectral quality of light from a moderately overcast northern sky, as represented by CIE Illuminant D 7500. Evaluate for compliance with 3.3.5.

4.3.2 Resistance to water. Prepare two steel panels in accordance with method 2011, procedure B, of Fed. Test Method Std. No. 141. On one of the panels draw down a film which will give a 0.025 mm dry film, and allow to dry for 48 hours in a horizontal position under standard conditions. Then immerse two-thirds of the height of the painted surface for 18 hours in distilled water, maintaining the temperature of the water at 25 + 5°C. Remove the panel, allow 2 hours recovery, then examine and evaluate for compliance with 3.3.6.

4.3.3 Flexibility. Determine the flexibility of the paint in accordance with method 6221 of Fed. Test Method Std. No. 141. Apply a 51 mm wide film of paint using a film applicator that will give a dry film thickness of 0.023 to 0.028 mm on one of the panels prepared in 4.3.2. Air dry for 2 hours in a horizontal position under standard conditions, then bake in an oven at 100 to 105°C for 24 hours. Remove the panel and allow to cool for 2 hours, then bend over a 3.2 mm mandrel. Examine at the bend using a 5-power lens, then evaluate for compliance with 3.3.7.

4.3.4 Compatibility with thinner. Pour approximately 50 ml of the material into a graduate or tall beaker, then add 50 ml of commercially-available mineral spirits. Mix thoroughly and allow to stand undisturbed for 30 minutes; then evaluate for compliance with 3.3.8.

4.3.5 Gloss. The paint shall be tested as specified in ASTM D 523 using the following procedure:

- (1) Prepare sample by applying sufficient paint on a clear glass panel to form a dry film thickness of  $0.076 \pm .005$  mm ( $.003 \pm .0002$  inch).
- (2) Sixty degree (60°) gloss shall be measured.

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## 5. PREPARATION FOR DELIVERY

5.1 Packaging. Packaging shall be Level A or Commercial, as specified (see 6.2).

5.1.1 Level A. The paint shall be furnished in 1-quart metal cans, 1-gallon metal cans, 5-gallon metal pails, or 55-gallon steel drums, as specified (see 6.2). The metal cans, pails, and drums shall meet or exceed the requirements of DOT Specifications under 49 CFR 178.

5.1.2 Commercial. The paint shall be packaged in cans, pails, or drums, as applicable, in accordance with normal commercial practice. The complete package shall be designed to protect the item against damage during shipment, handling, and storage.

5.2 Packing. Packing shall be Level A or commercial, as specified (see 6.2).

5.2.1 Level A. Twelve 1-quart cans or four 1-gallon cans of paint, packaged as specified in 5.1, shall be packed in fiberboard boxes made from weather-resistant fiberboard with a bursting test strength of not less than 275 pounds per square inch. The box flaps shall be secured with water-resistant adhesive applied to not less than 75 percent of the surface area of contact between the flaps, or with 3 inch wide waterproof tape applied to the full length of the seams and extending over the ends not less than 3 inches. Alternatively, wire-bound, cleated plywood, or nailed wood boxes shall be acceptable shipping containers when lined with a waterproof barrier material. The barrier material shall be sealed at the edges with waterproof tape or adhesive. Five gallon metal pails or 55-gallon steel drums need no further packing.

5.2.2 Commercial. The 1 quart and 1 gallon paint, packaged as specified in 5.1, shall be packed in fiberboard boxes to insure safe delivery at destination, to provide for safe redistribution by the initial receiving activity, and shall be acceptable by common carrier under the National Motor Freight Classification or Uniform Freight Classification.

5.3 Unitization. When shipments to Government depots are full car or truck-load, the shipping containers shall be unitized for shipment and handling in accordance with normal commercial practice. The unitized load shall not exceed 2,500 pounds in weight, 63 inches in height, 56 inches in length, and 45 inches in width.

5.4 Marking. Packages, shipping containers, and unitized loads (when applicable) shall be marked in accordance with Fed. Std. No. 123.

## 6. NOTES

6.1 Intended use. The paint covered by this specification is intended for use on wooden vessels. The paint is also satisfactory for use on properly prepared steel surfaces.

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

- (a) Title, number, and date of this specification.
- (b) Composition required (see 3.1.1.2 and 4.2.2).
- (c) Size of container required (see 5.1).
- (d) Selection of applicable levels of packaging and packing required (see 5.1).

DOD WAIVES COORDINATION  
UNTIL FURTHER NOTICE

Civil Agency Coordinating Activities:

COM-NBS  
DOT-FAA

Preparing activity: GSA-FSS

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Orders for this publication are to be placed with General Services Administration, acting as an agent for the Superintendent of Documents. See Section 2 of this specification to obtain extra copies and other documents referenced herein. Price 60 cents each.