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December 31, 1974
SUPERSEDING
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FEDERAL SPECIFICATION

VARNISH: ASPHALT

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 an asphalt varnish type, suitable for general use.

1.2 Classification.

1.2.1 Type and grade. This specification covers one grade and one type of asphalt varnish for both indoor and outdoor exposure.

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-L-215 - Linseed Oil, Raw, (For Use in Organic Coatings).
TT-P-143 - Paint, Varnish, Lacquer, and Related Materials; Packaging, Packing, and Marking Of.
TT-T-291 - Thinner-Paint, Volatile Spirits, Petroleum Spirits.

Federal Standards:

Fed. Test Method Std. No. 141 - Paint, Varnish, Lacquer, and Related Materials; Methods of Inspection, Sampling, and Testing.

(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 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, Forth 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.)

3. REQUIREMENTS

3.1 Material. The varnish as received shall be an asphalt varnish properly blended and ready for use.

3.1.1 Composition. The asphalt varnish shall consist of native asphalt or asphaltiles such as Gilsonite, run (fluxed), blended with properly treated drying oil, necessary amount of driers and thinner as specified.

3.1.2 Thinner (solvent). The thinner shall be a solvent conforming to TT-T-291, type II or any solvent system complying "Rule 66." [1]

3.2 Qualitative requirements.

3.2.1 Condition in container. When tested as in 4.3.1 the varnish shall show no separation of ingredients, lumps, thickening, dry-hard caking or settling. It shall maintain its homogeneity.

[1] Information on "Rule 66" may be obtained from Los Angeles Air Pollution Control District, Los Angeles, CA 90013.

3.2.2 Appearance. When tested as in 4.3.2 the appearance of the dried film shall be smooth and homogeneous.

3.2.3 Color. The color of the varnish shall be jet black when tested as in 4.3.3.

3.2.4 Odor. The odor of the varnish during and after application as described in 4.3.4 shall not be pungent, offensive or disagreeable.

3.2.5 Storage stability. When stored for 2 years as specified in 4.3.5, the varnish shall be useable with no change in physical qualities as specified in table I.

3.2.6 Miscibility with linseed oil. When tested as in 4.3.6 the varnish shall mix readily with an equal volume of linseed oil to a homogeneous mixture.

3.2.7 Working properties. The varnish when brushed and flowed as tested in 4.3.7 shall show good brushing, flowing and leveling properties. The dried film shall be smooth, free from brush marks, pinholes or other defects.

3.2.8 Resistance to lubricating oil. The dried film shall withstand the resistance test in 4.3.8 without softening or deterioration.

3.2.9 Resistance to water. The varnish film when tested as in 4.3.9 shall show no whitening, dulling, blistering, and other defects.

3.2.10 Accelerated weathering. The dried film when tested as in 4.3.10, shall show no cracking, crazing or a severe change in color.

3.4 Quantitative requirements.

3.4.1 The quantitative requirements of the varnish shall be as specified in table I.

TABLE I. Quantitative requirements

Characteristics	Requirements	
	Minimum	Maximum
Nonvolatile, percent by weight or varnish	40	---
Flash Point, degree F	86	---
Drying time:		
Set to touch, hours	---	3
Dry hard, hours	---	24
Matter insoluble in carbon bisulfide [1], percent by weight	---	1
Toughness, reduction test, percent	50	---

[1] Trichloroethylene can be used in place of carbon bisulfide.

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 Sampling and inspection. Unless otherwise specified, sampling and inspection shall be in accordance with Fed. Test Method Std. No. 141, method 1031.

4.3 Test procedures. The test procedures shall be conducted in accordance with Fed. Test Method Std. No. 141, except as otherwise specified in table II.

TABLE II. Index

Characteristics	Requirement Reference	Applicable Tests Fed Test Method Std. No. 141	Paragraph Reference
Condition in container	3.2.1	----	4.3.1
Appearance	3.2.2	----	4.3.2
Color	3.2.3	----	4.3.3
Odor	3.2.4	3022	4.3.4
Storage stability	3.2.5	----	4.3.5
Miscibility with linseed oil	3.2.6	----	4.3.6
Working properties	3.2.7	4041	4.3.7
Resistance to lubricating oil	3.2.8	----	4.3.8
Resistance to water	3.2.9	----	4.3.9
Accelerated weathering	3.2.10	----	4.3.10
Nonvolatile matter	Table I	4041	------
Flash point	Table I	4293	------
Drying time	Table I	4061	------
Matter insoluble in carbon bisulfide	Table I	----	4.3.11
Toughness reduction	Table I	4151	------

4.3.1 Condition in container. Determine packaged condition of the varnish in accordance with method 3011 of Fed. Test Method Std. No. 141 for compliance with 3.2.1.

4.3.2 Appearance. Transfer a portion of the packaged varnish into a clean, clear glass plate and stand in a vertical position until the excess varnish has drained off. Examine the film by transmitted light and observe for compliance with 3.2.2.

4.3.4 Color. Pour a portion of the thoroughly mixed varnish on a clean, clear plate glass panel and allow to stand in a vertical position at room temperature for 24 hours. Then examine for compliance with 3.2.3.

4.3.4 Odor. Observe the odor in the can, during application, and after the varnish ha dried 24 hours. Then evaluate for compliance with 3.2.4.

4.3.5 Storage stability. In accordance with method 3022 of Fed. Test Method Std. No. 141, allow a full standard pint can of varnish to stand undisturbed for 2 years. (A certificate of compliance from the supplier to this effect is necessary to avoid delay). Evaluate the content in the can after agitating for five minutes in a paint shaker then determine for compliance with 3.2.5.

4.3.6 Miscibility with linseed oil. Place 10 ml. of the well mixed vanish, in a test tube. Add 10 ml of raw linseed oil conforming to TT-L-215. Stopper the tube and mix the contents by shaking vigorously for several minutes. Allow to stand at room temperature for 18 hours. Pour most of the mixture on a clean, clear plate glass held at 10 deg. to 30 deg. from vertical so that the tube passes along the upper part of the panel. Stand the panel to nearly vertical

position. After the excess varnish has drain off, examine by transmitted light and observe for compliance with 3.2.6.

4.3.7 Working properties. In accordance with method 2141 of Fed. Test Method Std. No. 141 apply a thin coat of varnish to a tin panel prepared in accordance with method 2012 of Fed. Test Method Std. No. 141. Then examine the dried film in accordance with method 4541 of Fed. Test Method Std. No. 141 and observe for compliance with 3.2.7.

4.3.8 Resistance to lubricating oil. Apply a coat of the varnish to a tin panel method 2012 of Fed. Test Method Std. No. 141, by brushing method 2141 of Fed. Test Method Std. No. 141; place the coated panel in a horizontal position and allow to dry in a well-ventilated room, not in the direct rays of the sun, at a temperature at 21 deg. to 32 deg. C (70 deg. to 90 deg F.) for 6 days. In at least two different area, place several drops of lubricating oil [1] and allow to stand in contact with the film for 6 hours. During the test, the spots of oil shall be covered with small watchglasses. After wiping off the oil with cotton waste, no softening or other deterioration of the film, due to the lubricating oil, shall be perceptible.

4.3.9 Resistance to water. Flow the varnish on a tin panel prepared in accordance with method 2012 of Fed. Test Method Std. No. 141 and allow to dry in a well-ventilated room or chamber free form drafts, dust and in diffused light (not in direct sunlight). The temperature within the room or chamber shall be between 21 deg. and 28 deg. C(70 deg. and 82 deg. F.) and relative humidity of 50 percent. Place the panel in a beaker containing 2.5 inches of distilled water at room temperature (immersing the end of the panel which was uppermost during the drying period) and leave in water for 18 hours. After removing the panel from the water [2] and drying for 2 hours examine for compliance with 3.2.9.

[1] A straight mineral lubricating oil, such as in SAE No. 40 oil of the naphthenic type, having a viscosity index of not over 30 and viscosity (Saybolt Universal) of 65 to 80 sec. at 210 deg. F.
[2] After removal from the water the film may be slightly sponged with a pad or cheesecloth or cotton to remove any surface material.

4.3.10 Accelerated weathering. Draw down a film of asphalt varnish on duplicate flat tin panels, prepared in accordance with method 2012 of Fed. test Method Std. No. 141, with a film applicator to yield a dry film thickness of 1.25 mils +/- 0.2 mils. Allow to dry for 48 hours and then subject the coated panels for 100 hours to the accelerated weathering test in accordance with method 6151 of Fed. Test Method Std. No. 141. Examine for compliance with 3.2.10.

4.3.11 Inspection of preparation for delivery. The varnish shall be examined for compliance with the packaging, packing, and marking requirements of section 5 in accordance with TT-P-143.

5. PREPARATION FOR DELIVERY

5.1 Packaging, packing, and marking. The varnish shall be packaged, packed, and marked in accordance with TT-P-143. The level of packaging shall be A, B, or C and the level of packing shall be A, B, or C as specified (see 6.2). The varnish shall be furnished in 1-quart,1-gallon, or 5-gallon cans. (see 6.2).

6. NOTES

6.1 Asphalt varnish is intended to meet all the needs for a general utility asphalt varnish, suitable for both outside and inside exposure. It is particularly suited for the painting of indoor water and gas pipes. It dries with a smooth, black, lustrous finish (similar to black enamel).

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) Selection of applicable levels of packaging and packing required (see 5.1).
(c) Size of container required (see 5.1).

6.3 While this specification is based mainly on physical and performance requirements, the type of varnish contemplated under this specification and one that has been found to meet it is a 7-gallon, bodied linseed oil-Gilsonite varnish (7 gallons of heat-bodied ("X" body) linseed oil to 100 pounds of Gilsonite selects, properly fluxed and blended, then thinned with a blend of turpentine and petroleum naphtha together with the addition of sufficient lead-manganese driers.)

6.4 Basis of purchase. Varnish should be purchased by volume, the unit being a gallon of 231 cubic inches at 15.5 deg. C. (60 deg. F). The volume may be determined by diving the net weight in pounds y the weight per gallon.

CIVIL AGENCIES COORDINATING ACTIVITY:

GSA-FSS
JUS-FPI
VA-DMS
HEW-NIH
DC-DCG

Preparing Activity:

GSA - FSS

User Interests:

Navy - YD
Air Force Code - 84

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 25 cents each.