

MIL-C-18480B  
28 May 1982  

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SUPERSEDING  
MIL-C-18480A(YD)  
4 October 1961

MILITARY SPECIFICATION

COATING COMPOUND, BITUMINOUS, SOLVENT, COAL-TAR BASE

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

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers a cold-applied coal-tar base coating compound for use on steel structures under conditions where it is not feasible to use a hot-applied coal-tar enamel.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. Unless otherwise specified, the following specifications, standards, and handbooks of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DODISS) specified in the solicitation, form a part of this specification to the extent specified herein.

SPECIFICATION

FEDERAL

PPP-P-1892 - Paint, Varnish, Lacquer, and Related Materials; Packaging, Packing, and Marking of.

STANDARDS

FEDERAL

FED. TEST METHOD STD. No. 141 - Paint, Varnish, Lacquer, and Related Materials; Methods of Inspection, Sampling, and Testing.  
FED-STD-313 - Material Safety Data Sheets, Preparation and the Submission of.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commanding Officer (Code 156), Naval Construction Battalion Center, Port Hueneme, CA 93043, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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(Copies of specifications, standards, handbooks, drawings, and publications required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

2.1.2 Other Government documents, drawings, and publications. The following other Government documents form a part of this specification to the extent specified herein.

Laws and Regulations.

29 CFR 1900-1999 - Occupational Safety and Health Administration (OSHA),  
Department of Labor.

(The Code of Federal Regulations (CFR) and the Federal Register (FR) are for sale on a subscription basis by the Superintendent of Documents, US 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. The issues of the documents which are indicated as DoD adopted shall be the issue listed in the current DODISS and the supplement thereto, if applicable.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- D20 - Distillation of Road Tars.
- D36 - Softening Point of Bitumen (Ring-and-Ball Apparatus).
- D92 - Flash and Fire Points by Cleveland Open Cup.
- D128 - Analysis of Lubricating Grease.
- D453 - Tar Acids in Creosote-Coal Tar Solutions.

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

(Industry association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

3. REQUIREMENTS

3.1 Material. The compound shall be a homogeneous mixture composed only of a coke-oven coal-tar pitch, solvents, and inert non-water-absorbent mineral filler. The compound shall not contain asphalt or asbestos.

3.1.1 Solvent composition. When specified, the compound shall conform to applicable air quality control regulations as specified (see 6.2).

3.2 Requirements. The compound shall conform to the requirements given in table I.

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TABLE I. Requirements.

Property	Characteristics		ASTM/FTMS 141	Test paragraph
	Min	Max	Test Method	
Flash point, °C	35	...	D92	4.3.1.1
Distillation, 235°C, wt %	15	30	D20	4.3.1.1
Penetration of distillation residue, mm	5	25	D5, 235°C residue sample	4.3.1.1
Softening point of distillation residue, °C	96	115.5	D36, 235°C residue sample	4.3.1.1
Ash content of compound, wt %	15	30	D128, rapid routine method	4.3.1.1
Tar acids of compound, ml/100g	...	0.6	D453, distilla- tion to 300°C	4.3.1.1
Workability	Satisfactory working and spreading		...	4.3.1.2
Sag	No sag or flow while wet		...	4.3.1.3
Drying 6 hours 24 hours	Set-to-touch Dry-to-recoat		4061, doctor- blade applica- tion at 120 ft <sup>2</sup> /gallon	4.3.1.1
Adhesion and protection	Shall not loosen, check, crack, peel, run, sag, or otherwise lose protection value		...	4.3.1.4
Resistance to impact	No visible chip- ping, cracking, or detachment from plate, and firm adhesion outside radius of 1/4 inch from center of impact		...	4.3.1.5
Resistance to alkali	No evidence of disintegration		...	4.3.1.6

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3.3 Toxicity. The compound 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 acquiring activity to the appropriate medical service who will act as adviser to the acquiring activity. The manufacturer's instructions shall provide personnel protection to meet OSHA requirements, including 29 CFR 1910.1000, and 1910.1002, as applicable. Material Safety Data Sheets (MSDS) shall be prepared in accordance with FED-STD-313, and submitted, as directed in the contract or order, at the time of acquisition award. Copies shall be forwarded to the designated Industrial Hygienist and the focal point of the activity that purchased the item, and the focal point of the using activity if different (see 6.2 and 6.3).

## 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 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 the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

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

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

4.3 Quality conformance inspection. Quality assurance shall be provided in accordance with method 1031 of Fed. Test Method Std. No. 141. Failure of the coating compound to pass any test shall be cause for rejection of the lot.

4.3.1 Tests.

4.3.1.1 Requirements. Test the properties cited by the methods specified in table I.

4.3.1.2 Workability. Test the coating compound, applied cold, for firm adherence to bare steel, primer (if used), and itself. At 25  $\pm$ 2° Celsius (C), the coating shall permit easy application by brush or spray, in two successive coats, to a minimum dry film thickness of 30  $\pm$ 2 mils. At 7  $\pm$ 2°C, the coating shall permit easy brush application.

4.3.1.3 Sag. At 23  $\pm$ 1°C and 50  $\pm$ 4 percent relative humidity, apply the compound to a clean, smooth 12 by 12 by 1/8-inch thick steel plate, to a uniform wet film thickness of 30  $\pm$ 2 mils. Immediately after application, suspend the panel in a vertical position at application conditions for

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24 hours. Then examine for evidence of sag or flow while wet. Prepare a second plate as described, except to a uniform wet film thickness of  $15 \pm 1$  mils. Immediately after application, suspend the panel in a vertical position at  $71 \pm 2^\circ\text{C}$  for 1 hour. Then examine for evidence of sag or flow while wet.

4.3.1.4 Adhesion and protection. Expose the coated panel, tested at  $23^\circ\text{C}$  in 4.2.1.3, to  $60 \pm 2^\circ\text{C}$  for 16 hours. Allow the panel to cool at room temperature 1 hour, then expose to  $-23 \pm 2^\circ\text{C}$  for 4 hours. Examine the coating for conformance to table I.

4.3.1.5 Resistance to impact. Apply the compound to two wire-brushed, solvent-cleaned, mild steel plates, each 6 by 6 by 1/8-inch thick, to a uniform dry film thickness of  $30 \pm 2$  mils. Dry 72 hours at room temperature, then test each plate separately, while being held firmly, coated side up, on a solid horizontal base. Drop a 2-pound steel ball from a height of 8 feet so that the impact will be at the center of the plate. Examine the coating for conformance to table I.

4.3.1.6 Resistance to alkali. Apply the compound to a clean glass panel at a uniform dry film thickness of  $30 \pm 2$  mils. Dry the panel at  $23 \pm 1^\circ\text{C}$  for 24 hours, then suspend vertically in 5 percent sodium hydroxide, maintained at  $23 \pm 1^\circ\text{C}$ , so that one-half of the coating is immersed. After 30 hours, lightly rub the film with a well-rounded glass rod and examine for evidence of disintegration.

4.4 Packaging inspection. The inspection of the packaging, packing, and marking shall be in accordance with the requirements of section 4 of PPP-P-1892.

## 5. PACKAGING

5.1 Packaging, packing, and marking. The compound shall be packaged, packed, and marked in accordance with PPP-P-1892. 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 compound shall be furnished in 5-gallon pails with lug cover or in 55-gallon drums with full removable cover, as specified (see 6.2).

## 6. NOTES

6.1 Intended use. The compound is intended for use on steel structures as necessary to substitute for hot-applied coal-tar enamel coating. The compound is used also as a protective coating for dissimilar metals in contact, as an electrical insulating coating, and on fiberglass lagging for waterproofing. It is appropriate for contact with alkaline soils, and may be used on underwater marine structures. Generally two coats are used, to a dried film thickness of 20 to 40 mils. Material to be exposed to sunlight or weather should be top-coated with MIL-C-15203 coal-tar emulsion.

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6.2 Ordering data. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. Applicable air quality control regulations, when specified (see 3.1.1).
- c. Addresses for submission of MSDS (see 3.3 and 6.3).
- d. Level of packaging and level of packing required (see 5.1).
- e. Size of container required (see 5.1).

6.3 MSDS submission and forwarding. After review and acceptance of MSDS by designated recipients, approved copies will be forwarded to arrive at destinations prior to material delivery (see 3.3).

Custodians:

Army - MR  
Navy - YD  
Air Force - 99

Preparing activity:

Navy - YD  
Project No. 8030-0490

Review activities:

Army - CE  
Navy - SH

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