[METRIC]
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September 10, 1996
Superseding
TT-E-496B
May 11, 1967

COMMERCIAL ITEM DESCRIPTION

PAINT: HEAT RESISTING (204 °C)

The General services Administration has authorized the use of this commercial item description by all federal agencies.

1. **SCOPE.** This commercial item description describes a one component, heat resisting paint. This paint is for use over metal, primarily steel, and can withstand continuous operating temperatures of 204 °C (400 °F).

2. **SALIENT CHARACTERISTICS.**

2.1 **General requirements.**

2.1.1 **Condition in container.** The paint shall be free from skins, seeds, and hard settled pigment, and shall be readily dispersible to a uniform condition by five minutes of hand stirring. A closed, three-quarter filled container shall not skin within 48 hours, when stored at room temperature.

2.1.2 **Prohibited materials.** The manufacturer shall ensure that no mercury, cadmium, hexavalent chromium, halogenated compounds, hydrolyzable halogen derivatives, Hazardous Air Pollutants (HAPS) or Ozone Depleting Substances (ODS) are used in the formulation. If any of these substances is present as an impurity in a raw ingredient, its concentration shall be less than 0.1 percent by weight. The lead content of the nonvolatile portion of the coating shall not exceed 0.06 percent.

2.1.3 **Color.** The color shall be as specified in the contract or purchase order.

2.2 **Special requirements.**

2.2.1 **Water Immersion.** When tested as specified in table I, the hardness, toughness, adhesion, and gloss of the dried immersed paint shall be equal to that of the unimmersed paint.

2.2.2 **Heat resistance.** Four panels, horizontally dried, prepared as described in note 2 below, shall be suspended in a vertical position in an air oven. The panels shall be heated and the temperature maintained at 204 °C (400 °F) for five hours. There shall be no film running or sagging during heating. After heating, remove the panels. Allow two of the panels to cool to room temperature for one hour. There shall be no blistering, cracking or flaking and the color shall be a close visual match to the color of the sample before testing.

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any data which may improve this document should be sent to: General Services Administration, Paints and Chemicals Center, Engineering and Commodity Management Division (10FTE), 400 15th St. SW, Auburn, WA. 98001.

2.2.3 **Thermal shock resistance.** Take two of the panels at the end of the heating period in 2.2.2 and immediately plunge it into a two liter beaker containing about 100 mm (4 in) of water having a temperature of 20-25 °C (68-77 °F). Allow the panel to remain in the beaker for five minutes. Remove the panel and allow to recover for 30 minutes. The paint film shall show not cracking, flaking, or loss of adhesion.

2.3 **Quantitative requirements.** The paint shall meet the requirements listed in table I.

TABLE I

REQUIREMENTS

PROPERTY	REQUIREMENT	ASTM TEST METHOD
Volatile Organic Compound (VOC) Content, max	420 g/l (3.5 lb/gl)	D 3960 1/
Flash Point, 37.5°C (100°F), min.	38 °C (100 °F)	D 56
Viscosity Range, Krebs Units	65 - 90	D 562
Drying Times		
Dry to touch, hr, max. @ 1 mil dft	2	D 1640 2/
Dry to recoat, hr., max. @ 1 mil dft	24	D 1640 2/
Specular Gloss, 60°, min	As specified in contract or order	D 523 2/
Adhesion	5B	D 3359 2/ and 3/
Flexibility, 6.35 mm (0.25 in) diameter cylindrical mandrel		
Before heating	no cracking or flaking	D 522 2/ and 4/
After thermal shock	no cracking or flaking	D 522 5/
Water Immersion, 10 minutes @ 100 °C (212 °F)	see 2.2.1	D 1308 2/
Accelerated aging, 1 month at 52±1 °C (125±2 °F)		
Viscosity after storage, K.U.	65-95	D 1849 and D 562
Rigidity after storage	10	D 1849 and D 869
Color difference from FED-STD-595	1.75 max.	D 2244
Odor	not objectionable	D 1296

1/ The VOC shall be determined on the paint as applied in accordance with the manufacturer's instructions for use

2/ The test panels used shall be untreated steel in accordance with FED-STD-141 method 2011 procedure A. They shall be prepared and coated in accordance with the manufacturer's instructions, as appears on their paint can label for this product. However, the drying time shall not exceed 72 hours. The dry film thickness shall be 25 ± 2µm (0.001 ± 0.0001 inch).

3/ Use method B. Allow the coating to dry for 72 hours prior to testing. Test two painted panels. Use Scotch Brand Tape number 810 or any other cellophane tape with the same adhesive strength.

4/ Use method B. The dry film thickness shall be 25 ± 2µm (0.001 ± 0.0001 inch). The coating shall air dry for 24 hours and then be baked for two hours at 105 °C (221 °F). Testing shall be done after 24 hours of conditioning at room temperature. The time for the panel bending shall be 1.5 to 1.6 s. For referee

purposes, room temperature shall be 23 ± 2 °C (73.5 ± 4 °F) and a relative humidity of 50 ± 5 percent relative humidity.

5/ The panel used shall be the test panels from 2.2.3. After the thermal shock test, the panel shall be wiped dry and then conditioned for 24 hours at room temperature. The panels shall be tested in accordance with ASTM method 522. The time for the panel bending shall be 1.5 to 1.6 s.

3. REGULATORY REQUIREMENTS.

3.1 **Federal Acquisition Regulations (FAR).** The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the FAR.

3.2 **Code of Federal Regulations (CFR).** The primer coatings shall not contain any substance listed in the following Code of Federal Regulations as a hazardous air pollutant or ozone depleting substance:

a. 40 CFR part 61 through 63.
b. 40 CFR part 82

3.3 **MSDS.** The manufacturer must comply with requirements set forth by the Hazardous Communication Standard 29 CFR 1910.1200 (d) through (g). All Material Safety Data Sheets (MSDSs) submitted must comply with provisions of FED-STD-313.

4. QUALITY ASSURANCE PROVISIONS.

4.1 **Product conformance.** The contractor shall maintain substantiating evidence that the product offered meets the salient characteristics of this Commercial Item Description and that the product conforms to the producer's own drawings, specifications, standards, and quality assurance practices, and is the same product offered for sale in the commercial marketplace.

The contractor shall provide the required information in a tabulated format and with enough clarity so that the formulation of the tested product can be traced compared to the offered product(s). The contractor shall also provide a summary of performance data, consisting of test reports, substantiating that the product to be supplied under this CID meets the special and quantitative requirements in 2.1 through 2.3, and is the same product offered for sale in the commercial marketplace.

The government reserves the right to require proof of such conformance prior to first delivery and thereafter as may be otherwise provided for under the provisions of the contract.

4.2 **Market acceptability criteria.** The item offered must have had substantial sales to the commercial market place for the intended purpose of this commercial item description.

5. PACKAGING.

Preservation, Packing, and marking shall be as specified in the contract or order.

6. NOTES.

6.1 **Intended use.** This paint is intended for use on steel at a continuous operating temperature of 204 °C (400 °F) or less. Such uses include steam pipes, boiler front and other similar surfaces subjected to this

temperature. The steel must be clean and sand blasted to a SSPC finish of SP 10. For long lasting results, an inorganic zinc primer should be used. It can be used over other metals which have been properly prepared and primed.

6.2 **Ordering Data.** Purchasers should include the following information in the contract or purchase order.

(a) Title, number, and date of this commercial item description.
(b) Color and gloss required.
(c) Quantity and size of the container required.
(d) Address to whom MSDSs should be sent.
(e) Packaging, packing, and marking required.

6.3 **Part Identification Number (PIN).** The following part identification numbering procedure is for government purposes and does not constitute a requirement for the contractor.

{ EMBED Charisma }

6.4 **Referenced documents.**

Federal Standards:

FED-STD-141 - Paint, Varnish, Lacquer and Related Materials: Methods of Inspection, Sampling and Testing.
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.

ASTM Standards:

D 56 - Flash point by Tag Closed Tester.
D 522 - Mandrel Bend Test of Attached Organic Coatings.
D 523 - Specular Gloss.
D 562 - Consistency of Paints Using the Stormer Viscometer.
D 869 - Evaluating Degree of Settling of Paint.
D 1296 - Odor of Volatile Solvents and Diluents.
D 1308 - Effect of Household Chemicals on Clear and Pigmented Organic Finishes.
D 1640 - Drying, Curing, or Film Formation of Organic Coatings at Room Temperature.
D 1849 - Package Stability of Paint.
D 2244 - Calculation of Color Differences from Instrumentally Measured Color Coordinates.
D 3359 - Measuring Adhesion by Tape Test.
D 3960 - Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings.

6.5 **Source of Documents.**

6.5.1 Contact the contracting officer for a copy of paragraph 23.403 of the FAR,

6.5.2 Copies of ASTM specifications and standards may be obtained from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

6.5.3 Copies of Method 2011 of FED-STD-141 may be obtained from the Federal Supply Service Bureau, Specification Section, Suite 8100, 470 East L'Enfant Plaza, SW, Washington, DC 20407.

6.5.4 Contact the contracting officer for copies of the appropriate paragraphs in 29 and 40 CFR.

MILITARY INTERESTS:

Review Activities
Army - MI
Navy - MC

User Activities
Army - AR
Navy - YD1

CIVIL AGENCY COORDINATING ACTIVITY:
GSA-FSS
COM-NIST

Preparing Activity:

GSA-FSS