

MIL-P-24441/11A(SH)
 15 May 1986
 SUPERSEDING
 MIL-P-24441/11(SH)
 15 July 1980

MILITARY SPECIFICATION SHEET

PAINT, EPOXY-POLYAMIDE, EXTERIOR TOPCOAT, HAZE GRAY, FORMULA 151R66, TYPE II

This specification is approved for use within the Naval Sea Systems Command, Department of the Navy, and is available for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the paint described herein shall consist of this document and the latest issue of MIL-P-24441(SH).

FORMULA. This formula covers haze gray epoxy-polyamide paint designated Navy Formula 151R66, type II for interior or exterior use. The paint shall consist of the ingredients specified in the quantities specified.

Component A

	<u>Pounds</u>
Thixotrope ^{1/}	-
Polyamide ^{2/}	20
Polyamide adduct ^{3/}	280
Magnesium silicate ^{4/}	375
Titanium dioxide ^{5/}	100
Lampblack ^{6/}	1.5
Paint thinner ^{7/}	179
2-ethoxy ethanol ^{8/}	133

Component B

	<u>Pounds</u>
Thixotrope ^{1/}	-
Epoxy resin ^{9/}	500
Magnesium silicate ^{4/}	250
2-butoxy ethanol ^{10/}	71
2-ethoxy ethanol ^{8/}	227

See footnotes on next page.

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QUANTITATIVE REQUIREMENTS. The paint shall meet the following quantitative requirements and the qualitative requirements of section 3 of the general specification. Components A and B shall be mixed 1:1 by volume for mixed components tests. Tests shall be performed in accordance with the general specification.

Requirements	Component A		Component B		Mixed component	
	<u>Min</u>	<u>Max</u>	<u>Min</u>	<u>Max</u>	<u>Min</u>	<u>Max</u>
Pigment content, percent	42.3	46.3	22.6	26.6	---	---
Volatiles, percent	32.8	36.8	26.2	30.2	---	---
Nonvolatile vehicle, percent	18.9	22.9	45.2	49.2	---	---
Water, percent	---	0.5	---	0.5	---	---
Coarse particles, percent	---	0.3	---	0.3	---	0.5
Consistency, grams	165	325	110	185	120	225
Pounds per gallon	10.6	11.0	10.2	10.6	10.4	10.8
Set-to-touch time, hours at 40°F	---	---	---	---	---	2
Set-to-touch time, hours at 73°F	---	---	---	---	---	2
Dry-hard, hours at 40°F	---	---	---	---	---	24
Dry-hard, hours at 73°F	---	---	---	---	---	6
Fineness of grind, NS	5	---	5	---	5	---
Flash point, °F	90	---	110	---	95	---
Titanium dioxide, percent of pigment	18.5	---	---	---	---	---
Pot life, hours at 73°F	---	---	---	---	5	---
Gloss, 60 degrees specular, percent	---	---	---	---	---	30
Sag resistance, mils	---	---	---	---	9	---
Color, dry film ^{11/}	---	---	---	---	Conform	
Contrast ratio, 3 mils dry film	---	---	---	---	0.98	---

- 1/ The amount and type of thixotrope shall be selected by the manufacturer to meet all requirements of the general specification and this specification sheet.
- 2/ GENAMID 2000, Henkel Corporation; UNIREZ 2810, Union Camp; AZAMIDE 600, AZ Products; ANCAMINE 507, Pacific Anchor Chemical Corp.; EPOTUF SF7791, Reichhold Chemical; TriChem 9200, Trimont Chemicals.
- 3/ VERSAMID 280B75, Henkel Corporation; UNIREZ 2180B75, Union Camp; AZAMIDE 680B75, AZ Products; ANCAMINE 700B75, Pacific Anchor Chemical Corp.; EPOTUF SF7792, Reichhold Chemical; TriChem 9280-B-75, Trimont Chemicals.
- 4/ Pfizer Talc MP 30-36; Cyprus Montana Talc, Mistron 400.
- 5/ DuPont Tisure R960; NL Chemicals, TX 2101; Kerr-McGee, Tronox Tr 822.
- 6/ Pfizer M1011.

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- 7/ Chevron 350H, VARSOL-18, AMSCO Mineral Spirits.
- 8/ 99 percent pure by gas chromatography, density 0.93, refractive index (68°F) = 1.407, IR spectrum characteristic of compound.
- 9/ EPON 828, Shell Chemical Co.; ARALDITE 6010, Ciba-Geigy; DER 331, Dow Chemical Co.; AZEPOXY 128, AZ Products; EPO-TUF 37-140, Reichhold Chemical; EPI-REZ 510, Celanese; TriChem 728, Trimont Chemicals.
- 10/ 99 percent pure by gas chromatography, density 0.90, refractive index (68°F) = 1.418, IR spectrum characteristic of compound.
- 11/ Use FED-STD-595 Color Chip - Color No. 26270. When the instrument method of measuring color difference from standard color is used, the color difference (E) shall be no more than 4 units.

Use of alternate ingredients in this formula must have prior approval by the Naval Sea Systems Command. Approval will be based on review of data showing equivalent physical and chemical characteristics to the specified ingredient. It will be necessary to demonstrate that paint made using the ingredient will conform to all requirements of this specification.

Revision letters are not used to denote changes due to the extensiveness of the changes.

Preparing activity:
Navy - SH
(Project 8010-N289)

