Downloaded from http://www.everyspec.com

METRIC
MIL-DTL-24441/36A(SH)
19 May 1999
SUPERSEDING
MIL-P-24441/36(SH)
23 July 1991

DETAIL SPECIFICATION SHEET

PAINT, EPOXY-POLYAMIDE, NO. 50 GRAY, FORMULA 157, TYPE IV

This specification is approved for use by 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 product described herein shall consist of this specification and MIL-DTL-24441.

FORMULA: This formula covers no. 50 gray epoxy-polyamide paint designated Navy Formula 157, Type IV for interior or exterior use. The paint shall consist of the ingredients specified in the quantities specified.

COMPONENT A [12/]

Ingredients	Kilograms	Pounds
Thixatrope [1/]	---	---
Polyamide [2/]	16.33	36.0
Polyamide adduct [3/]	140.16	309.0
Titanium dioxide [4/]	226.80	500.0
Black iron oxide [5/]	2.72	6.0
Butyl Alcohol [6/]	117.03	258.0

COMPONENT B [12/]

Ingredients	Kilograms	Pounds
Thixatrope [7/]	---	---
Epoxy resin [8/]	232.24	512.0
Magnesium silicate [9/]	176.90	390.0
Naphtha [10/]	94.35	208.0

See footnotes on last page.

AMSC N/A FSC 8010
DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

Downloaded from http://www.everyspec.com

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

Requirements	Component A		Component B		Mixed components	
	Min	Max	Min	Max	Min	Max
Pigment content, percent (%)	43.0	48.0	33.0	38.0	---	---
Volatiles, %	29.0	35.0	16.0	21.0	---	---
Nonvolatile vehicle, %	17.5	23.5	44.0	49.0	---	---
Water, %	---	1.5	---	0.5	---	---
Coarse particles, %	---	0.3	---	0.3	---	---
Consistency, grams	140	190	300	470	---	---
Kilograms per liter (kg/L) [pounds per gallon (lb/gal)]	1.38 (11.5)	1.44 (12.0)	1.29 (10.8)	1.35 (11.3)	---	---
Set to touch, hours						
(a) at 4.4°C (40°F)	---	---	---	---	---	3
(b) at 23°C (73°F)	---	---	---	---	---	3
Dry-hard, hours						
(a) at 4.4°C (40°F)	---	---	---	---	---	24
(b) at 23°C (73°F)	---	---	---	---	---	8
Fineness of grind, NS	4	---	4	---	---	---
Flash point, °C (°F)	35.5 (96)	---	37.8 (100)	---	---	---
Titanium dioxide, % of pigment	14	---	---	---	---	---
Pot life, hours at 23°C (73°F)	---	---	---	---	4	---
Sag resistance, micrometers (mils)	---	---	---	---	225 (9)	---
Color of dry film to approximate the standard color chip [11/]	---	---	---	---	Conform	
Weight per epoxy, vehicle	---	---	175	195	---	---
Contrast ratio, 75 µm (3-mil) dry film	---	---	---	---	0.98	---
Gloss, 60 degree specular, %	---	---	---	---	40	60
VOC, grams per liter (g/L) (lb/gal) [12/]	---	---	---	---	---	340 (2.8)

See footnotes at top of next page.

Downloaded from http://www.everyspec.com

1/ Thixatrope to be used is the manufacturer's choice. In the development of component A, 6.80 kg (15 pounds) [7.95 L (2.1 gallons)] of Dislon NS-30 made by King Industries was used. Manufacturer is responsible for choosing a thixatrope that meets all the requirements herein, including shelf life. Thixatrope is a pigment for calculation purposes.
2/ GENAMID 2000, Henkel Corp.; UNIREZ 2810, Union Camp; AZAMIDE 600, AZ Products; ANCAMINE 507, Pacific Anchor Chemical Corp.; EPOTUF SF7791, Reichold Chemical.
3/ Xu-Hy-283, Ciba-Geigy Corporation.
4/ Titanium dioxide conforming to ASTM D 476, type IV. In the development of component A, DuPont Tipure R960 was used.
5/ Black Iron Oxide Bk-5599, Charles Pfizer.
6/ Conforming to ASTM D 304.
7/ Thixatrope to be used is the manufacturer's choice. In the development of component B, 6.80 kg (15 pounds) [6.81 L (1.8 gallons)] of Dislon 6500 made by King Industries were used. Manufacturer is responsible for choosing a thixatrope that meets all the requirements herein, including shelf life. Thixatrope is a pigment for calculation purposes.
8/ EPON 828, Shell Chemical Co.; ARALDITE 6010, Ciba-Geigy Corp.; DER 331, Dow Chemical Corp.; AZEPOXY 128, AZ Products; EPO-TUF 37-140, Reichold Chemical Corp.; Trichem 728, Trimont Chemicals; EPI-REZ 510, Celanese.
9/ Mistron 400, "Mistron 500", Cyprus Industries.
10/ Conforming to ASTM D 3734, type 1. In the development of component B, AMSCO Super High Flash Naphtha was used.
11/ Use FED-STD-595 color chip no. 26622. Color shall approximately match the color chip.
12/ For VOC calculations, component A makes approximately 383 L (101 gallons) and component B makes approximately 383 L (101 gallons).

Use of alternate ingredients in this formula must have prior approval of the Naval Sea Systems Command. Approval will be based on review of data demonstrating equivalent physical, chemical and performance characteristics of paint manufactured with the proposed alternate material and the requirements as specified in 3.4.2 of MIL-DTL-24441. Paint incorporating the proposed alternate ingredient shall conform to all the requirements of this military specification sheet and the general specification.

CHANGES FROM PREVIOUS ISSUE: Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

Preparing activity:
Navy - SH
(Project 8010-N023)

Downloaded from http://www.everyspec.com

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4,5,6, and 7 and send to preparing activity.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:	1. DOCUMENT NUMBER MIL-DTL-24441/36A	2. DOCUMENT DATE *(YYYYMMDD)* 1999/05/19

3. DOCUMENT TITLE
PAINT, EPOXY-POLYAMIDE, NO. 50 GRAY, FORMULA 157, TYPE IV

4. NATURE OF CHANGE *(Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed)*

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME *(Last, First, Middle Initial)*	b. ORGANIZATION	
c. ADDRESS *(Include Zip Code)*	d. TELEPHONE *(Include Area Code)* (1) Commercial (2) DSN *(if applicable)*	7. DATE SUBMITTED *(YYYYMMDD)*

8. PREPARING ACTIVITY

a. NAME Fred Berry, Code 03M1	b. TELEPHONE *(Include Area Code)* (1) Commercial (703) 602-0214 x210	(2) DSN
c. ADDRESS *(Include Zip Code)* Commander, Naval Sea Systems Command ATTN: SEA 03Q, 2531 Jefferson Davis Hwy Arlington, VA 22242-5160	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Standardization Program Office (DLSC-LM) 8725 John J. Kingman Road, Suite 2533, Fort Belvoir, VA 22060-6221 Telephone (703) 767-6888 DSN 427-6888	