METRIC
MIL-DTL-24441/20A(SH)
19 May 1999
SUPERSEDING
MIL-P-24441/20(SH)
23 July 1991

DETAIL SPECIFICATION SHEET

# PAINT, EPOXY-POLYAMIDE, GREEN PRIMER, FORMULA 150, TYPE III

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 green epoxy-polyamide paint designated Navy Formula 150, Type III for interior or exterior use. The paint shall consist of the ingredients specified in the quantities specified.

COMPONENT A [14/]

| Ingredients | Kilograms | Pounds |
|---|---|---|
| Thixatrope [1/] | --- | --- |
| Polyamide [2/] | 9.07 | 20.0 |
| Polyamide adduct [3/] | 127.01 | 280.0 |
| Titanium dioxide [4/] | 45.36 | 100.0 |
| Magnesium silicate [5/] | 226.80 | 500.0 |
| Butyl alcohol [6/] | 113.40 | 250.0 |
| Copper phthalocyanine blue [7/] | 0.45 | 1.0 |
| Yellow iron oxide [8/] | 9.07 | 20.0 |

COMPONENT B [14/]

| Ingredients | Kilograms | Pounds |
|---|---|---|
| Magnesium silicate [5/] | 45.36 | 100.0 |
| Thixatrope [9/] | --- | --- |
| Epoxy resin [10/] | 226.80 | 500.0 |
| Naphtha [11/] | 122.95 | 249.0 |
| Aluminum silicate [12/] | 68.04 | 150.0 |

See footnotes on next page.

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 (%) | 51.4 | 55.4 | 24.1 | 28.1 | --- | --- |
| Volatiles, % | 25.1 | 29.1 | 22.6 | 26.6 | --- | --- |
| Nonvolatile vehicle, % | 17.5 | 21.5 | 47.3 | 51.3 | --- | --- |
| Water, % | --- | 1.5 | --- | 0.5 | --- | --- |
| Coarse particles, % | --- | 0.3 | --- | 0.3 | --- | --- |
| Consistency, grams | 350 | 500 | 165 | 250 | --- | --- |
| Kilograms per liter (kg/L) [pounds per gallon (lb/gal)] | 1.38 (11.5) | 1.43 (11.9) | 1.23 (10.3) | 1.28 (10.7) | --- | --- |
| Set to touch, hours | | | | | | |
| (a) at 4.4°C (40°F) | --- | --- | --- | --- | --- | 2 |
| (b) at 23°C (73°F) | --- | --- | --- | --- | --- | 2 |
| Dry-hard, hours | | | | | | |
| (a) at 4.4°C (40°F) | --- | --- | --- | --- | --- | 24 |
| (b) at 23°C (73°F) | --- | --- | --- | --- | --- | 6 |
| Fineness of grind, NS | | --- | 2 | --- | --- | --- |
| Flash point, °C (°F) | 35.6 (96) | --- | 37.8 (100) | --- | --- | --- |
| Titanium dioxide, % of pigment | 14 | --- | --- | --- | --- | --- |
| Pot life, hours at 23°C (73°F) | --- | --- | --- | --- | 5 | --- |
| Sag resistance, micrometers (µm) (mils) | --- | --- | --- | --- | 225 (9) | --- |
| Color of dry film to approximate the standard color chip [13/] | --- | --- | --- | --- | Conform | |
| Weight per epoxy, vehicle | --- | --- | 175 | 195 | --- | --- |
| Contrast ratio, 75 µm (3-mil) dry film | --- | --- | --- | --- | 0.98 | --- |
| VOC, grams per liter (g/L) (lb/gal) [14/] | --- | --- | --- | --- | --- | 340 (2.8) |

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/ VERSAMID 280B75, Henkel Corp.; UNIREZ 2810, Union Camp; AZAMIDE 680B75, AZ Products; ANCAMINE 700B75, Pacific Anchor Chemical Corp.; EPOTUF SF7792, Reichold Chemical.

4/ Titanium dioxide conforming to ASTM D 476, type IV. In the development of component A, DuPont Tipure R960 was used.

5/ Mistron 400, Cyprus Industries.

6/ Butyl alcohol conforming to ASTM D 304.
7/ Sunfast Blue NCNF, Sun Chemical Corp.; Palomar Blue G B-4810, Mobay Chemical Corp.; Monarch Blue G-FR XX-3374 or Irgalite Blue LGLD, Ciba-Geigy Corp.; Cyanine Blue B7000 (352751), BASF Wyandotte Corp.
8/ Pfizer YO3587, Charles Pfizer Chemical Corp or Davis Color Lemon #569.
9/ Thixatrope to be used is the manufacturer's choice. In the development of component B, 6.80 kg (15 pounds) [6.81L (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.
10/ 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.
11/ Conforming to ASTM D 3734, type 1. In the development of Component B, AMSCO Super High Flash Naphtha was used.
12/ Huber 70C, J. M. Huber Corp.; Satintone #1, Englehard Mineral and Chemical Co.
13/ Use FED-STD-595 color chip no. 24272. Color shall approximately match the color chip.
14/ For VOC calculations, component A makes approximately 379 L (100 gallons) and component B makes approximately 386 L (102 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-N007)

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3. DOCUMENT TITLE
PAINT, EPOXY-POLYAMIDE, GREEN PRIMER, FORMULA 150, TYPE III

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

5. REASON FOR RECOMMENDATION

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| a. NAME *(Last, First, Middle Initial)* | b. ORGANIZATION | |
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