METRIC
MIL-DTL-24441/19C(SH)
27 August 2009
SUPERSEDING
MIL-DTL-24441/19B(SH)
19 May 1999

DETAIL SPECIFICATION SHEET

PAINT, EPOXY-POLYAMIDE, ZINC PRIMER, FORMULA 159, 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 sheet and MIL-DTL-24441.

FORMULA: This formula covers a cathodic protection zinc metal pigmented epoxy-polyamide paint designated Navy Formula 159, Type III for interior or exterior use. The paint shall consist of the ingredients specified in the quantities specified.

Component A[8/]

Ingredients	Kilograms	Pounds
Thixatrope[1/]	---	---
Polyamide[2/]	3.63	8.00
Polyamide adduct[3/]	48.082	106.0
Naphtha[4/]	13.61	30.0
Paint thinner[5/]	5.99	13.2

Component B[8/]

Ingredients	Kilograms	Pounds
Thixatrope[1/]	---	---
Zinc pigment[6/]	861.8	1900.0
Epoxy resin[7/]	86.18	190.0
Naphtha[4/]	55.797	123.0
Paint thinner[5/]	26.63	58.7

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 1:4 by volume for mixed component tests. Tests shall be performed in accordance with the general specification.

Requirements	Component A		Component B		Mixed components[8/]	
	Min	Max	Min	Max	Min	Max
Pigment content, percent (%)	---	---	81.5	85.5	---	---
Volatiles, %	42.8	44.3	8.0	8.4	---	---
Nonvolatile vehicle, %	53.7	57.7	8.3	8.7	---	---
Water, %	---	0.5	---	0.2	---	---
Consistency, grams	---	---	---	600	---	---
Kilogram per liter (kg/L) (pounds per gallon (lb/gal))	0.87 (7.3)	1.01 (8.4)	3.30 (27.5)	3.40 (28.8)	---	---
Set to touch, hours at 23 °C (73 °F)	---	---	---	---	---	2
Dry-hard, hours at 23 °C (73 °F)	---	---	---	---	---	8
Flash point, °C (°F)	35.6 (96)	---	37.8 (100)	---	35.6 (96)	---
Pot life, hours at 23 °C (73 °F)	---	---	---	---	4	---
Sag resistance, micrometers (mils)	---	---	---	---	300 (12)	---
VOC, grams per liter (g/L) (lb/gal)	---	---	---	---	---	300 (2.5)

1/ The amount and type of thixatrope shall be selected by the manufacturer to meet all requirements of the general specification and this specification sheet. Thixatrope is a pigment for calculation purposes.

2/ GENAMID 2000, Cognis Corp.; ANCAMIDE 507, Air Products Chemical Corp.; EPOTUF SF7791, REICHHOLD Chemical.

3/ VERSAMID 280B75, Cognis Corp.; ANCAMIDE 700B75, Air Products Chemical Corp.; EPOTUF SF7792, REICHHOLD Chemical.

4/ Conforming to ASTM D3734, Type I. In the development of this product, AMSCO Super High Flash Naphtha was used.

5/ Conforming to MIL-PRF-680, Type I.

6/ Zinc number 555, American Smelting & Refining; Zinc number 422, and number 64 Horsehead Corp.; Intermediate No. 32 non-gassing, Pacific Smelting Company; Zinc number 5XL, U.S. Zinc Corp.

7/ EPON 828, Hexion Chemical Co.; ARALDITE 6010, Huntsman Advanced Materials; DER 331, Dow Chemical Corp.; EPO-TUF 37-140, REICHHOLD Chemical Corp.

8/ Tests on mixed component shall consist of 1 volume of component A mixed with 4 volumes component B, then reduced with the equivalent of 40 grams per liter (0.3 pounds per gallon) thinner.

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 paragraph 3.4.1 of MIL-DTL-24441. Paint incorporating the proposed alternate ingredient shall conform to all of 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 8010-2009-003)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at http://assist.daps.dla.mil.