

METRIC

MIL-DTL-24631/3B(SH)

6 June 1997

SUPERSEDING

DOD-P-24631/3A(SH)

16 October 1987

DETAIL SPECIFICATION SHEET

PAINT, EPOXY, WHITE, NAVY FORMULA 186, TYPE I (METRIC)

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 the issue of MIL-DTL-24631 listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation.

FORMULA: This formula covers flexible epoxy paint MIL-DTL-24631/3B, type I, Navy Formula 186, White for exterior use. The paint shall consist of the ingredients specified in the quantities specified.

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TABLE I. Navy formula 186 - component A.

Ingredient	Pounds	Kilograms	Gallons <u>1/</u>	Liters <u>1/</u>
Curing agent <u>2/</u>	459.5	208.426	56.2	212.6
Titanium dioxide, ASTM D 476, Types III or IV	244.0	110.688	7.3	27.6
Flatting agent <u>3/</u>	14.9	3.834	0.9	3.3
Aromatic solvent <u>4/</u>	40.7	18.441	5.6	21.0
n-Butyl alcohol, ASTM D 304	193.6	87.843	28.6	108.3
Thickener <u>5/</u>	12.9	5.855	0.9	3.3
Thickener activator <u>6/</u>	4.5	2.054	0.5	1.7
Dispersant <u>7/</u>	0.6	0.262	0.1	0.3
Component A totals	970.7	437.403	100.1	378.2

TABLE II. Navy formula 186 - component B.

Ingredient	Pounds	Kilograms	Gallons <u>1/</u>	Liters <u>1/</u>
Curing agent <u>8/</u>	417.2	188.288	43.4	164.5
Titanium dioxide, ASTM D 476, Types III or IV	332.4	150.750	9.9	37.7
Flatting agent <u>3/</u>	41.5	18.845	2.4	9.0
Aromatic solvent <u>4/</u>	55.3	25.118	7.5	28.7
n-Butyl acetate, ASTM D 4615	260.6	128.433	35.4	133.8
Thickener <u>5/</u>	12.2	5.553	0.8	3.1
Thickener activator <u>6/</u>	4.4	2.039	0.5	1.7
Dispersant <u>7/</u>	0.9	0.369	0.1	0.4
Component B totals	1124.5	519.395	100.0	378.5

1/ Volume is given for guidance only. Actual volumes are dependent on specific raw materials used.

2/ The curing agent shall be Scotch Weld 2216A (transparent) modified amine available from the 3M Company, 3M Center, 2501 Hudson Road, St. Paul, MN 55144. See 3.5.7 of MIL-DTL-24631A(SH) or equivalent.

3/ Flatting agent shall be "Silicron G601" available from Glidden-Durkee Division, S.C.M. Corporation, Baltimore, MD, or equivalent.

4/ The solvent shall be any 97-99% aromatic with a flash point of 38° to 43°C (100° to 110°F).

5/ The thickener shall be "Bentone 38" available from Rheox, Inc., P.O. Box 700, Hightstown, NJ 08520, or equivalent.

6/ The thickener activator shall be "propylene carbonate: available from Jefferson Chemical, Shaker Heights, OH, or equivalent.

7/ The dispersant shall be "Tenlo 70" available from the Henkel Corporation, 300 Brookside Avenue, Ambler, PA 19002, or equivalent.

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8/ The epoxy resin shall be Scotch Weld 2216B (clear amber) epoxy available from the 3M Company, 3M Center, 2501 Hudson Road, St. Paul, MN 55144, or equivalent such as Epon 828 from Shell Chemical Co.. See 3.5.7 of MIL-DTL-24631A(SH).

Use of alternate ingredients in the formula must have prior approval of 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 the paint compound made using the alternative ingredient will conform to all requirements of the MIL-DTL-24631 general specification.

QUANTITATIVE REQUIREMENTS. The paint shall meet the quantitative requirements of table III and the qualitative requirements of section 3 of the MIL-DTL-24631 general specification.

TABLE III. Quantitative requirements.

Requirements	Component A		Component B		Mixed components	
	Min	Max	Min	Max	Min	Max
Pigment content, percent (%) by weight (wt) <u>1</u> /	24.6	32.6	30.8	38.8	---	---
Volatiles content, %wt <u>2</u> /	22.1	26.1	26.1	30.1	---	---
Nonvolatile vehicle content, %wt <u>3</u> /	45.3	49.3	35.1	39.1	---	---
Consistency, KU	---	---	---	---	60	---
Mass per unit volume, grams per liter (g/L) [pounds/gallon (lb/gal)]	1111 (9.60)	1201 (9.80)	1327 (11.14)	1417 (11.35)	---	---
Fineness of grind, Hegman	---	---	---	---	5	---
Flash point, °C (°F)	---	---	---	---	27 (80)	---
Set-to-touch time, hours	---	---	---	---	---	8
Dry hard time, hours	---	---	---	---	---	24
Pot life, hours	---	---	---	---	6	---
Gloss 60 degree (°) specular, %	---	---	---	---	---	100
Contrast ratio	---	---	---	---	0.9	---
Course particles, %	---	0.3	---	0.3	---	0.6
Volatile organic content (VOC), g/L (lb/gal)	---	---	---	---	---	340 (2.8)

1/ Calculation includes weights for all ingredients not covered by notes 2 and 3. Minimum pigment %WT was calculated as 100%-maximum %WT volatiles-maximum %WT nonvolatile vehicle. Maximum pigment %WT was calculated as 100%-minimum %WT volatiles-minimum %WT nonvolatile vehicle.

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- 2/ Calculation includes weights for following ingredients of components A: aromatic solvent and n-Butyl alcohol. Calculation includes weights for following ingredients of components B: aromatic solvent and n-Butyl acetate. Minimum-maximum range was $\pm 2\%$ from volatile weight %.
- 3/ Calculation for component A includes only weight of Scotchweld 2216A. Calculation for component B includes only weight of Scotchweld 2216A. Minimum-maximum range was $\pm 2\%$ from nonvolatile vehicle weight %.

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-N804)