AMERCOAT® 91

DESCRIPTION

Two-component, novolac phenolic epoxy tank lining

PRINCIPAL CHARACTERISTICS

- High performance tank lining and pipe lining
- Broad spectrum of chemical resistance
- Dry temperature resistance to 400°F (204°C) for insulated and uninsulated surface
- Suitable for use on insulated and uninsulated surfaces up to operating temperatures of 450°F (232°C) intermittent / 425°F (218°C) continuous when mixed with AMERCOAT 880 glass flake additive

COLOR AND GLOSS LEVEL

- White, buff, cirrus gray
- Low gloss

BASIC DATA AT 68°F (20°C)

Data for mixed product	
Number of components	Two
Volume solids	54 ± 2%
VOC (Supplied)	max. 3.4 lb/US gal (approx. 410 g/l)
Recommended dry film thickness	4.0 - 6.0 mils (100 - 152 µm) per coat
Theoretical spreading rate	144 ft²/US gal for 6.0 mils (3.6 m²/l for 150 µm)
Shelf life	Base: at least 24 months when stored cool and dry Hardener: at least 24 months when stored cool and dry

Notes:
- See ADDITIONAL DATA – Overcoating intervals
- See ADDITIONAL DATA – Curing time

RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES

Steel

- Remove weld spatter, protrusions, and laminations in steel. Grind welds smooth in accordance with NACE RP-0178
- Remove all surface contaminants, oil and grease in accordance with SSPC SP-1
- Abrasive blast with an angular abrasive to an SSPC SP-10 cleanliness or higher. Achieve a surface profile of 1.5 – 3.0 mils (38 – 75 µm)
- AMERCOAT 114 A may be used as a pit filler for certain applications. Check with PPG Technical Service for guidance on chemical resistance
- Check with PPG technical service for the maximum allowable soluble salt level for water immersion service. This will vary based on the water chemistry and service temperatures

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Stainless steel

- Abrasive blast in accordance with SSPC SP-16 guidelines to achieve a uniform and dense 1.5-4.0 mil anchor profile. Size and hardness of abrasive should be adjusted as necessary based on the hardness of the substrate

Substrate temperature

- Surface temperature during application should be between 50°F (10°C) and 122°F (50°C)
- Surface temperature during application should be at least 5°F (3°C) above dew point
- Ambient temperature during application and curing should be between 50°F (10°C) and 122°F (50°C)
- Relative humidity during application should be between 0% and 85% (0% to 50% using dehumidification for tank linings)

INSTRUCTIONS FOR USE

Mixing ratio by volume: base to hardener 88:12

- Pre-mix pigmented components with a pneumatic air mixer at moderate speeds to homogenize the container. Add hardener to base and agitate with a power mixer for 1–2 minutes until completely dispersed

Induction time

Mixed product induction time	
Mixed product temperature	**Induction time**
50°F (10°C)	45 minutes
70°F (21°C)	15 minutes
90°F (32°C)	5 minutes

Pot life

6 hours at 70°F (21°C)

Note: See ADDITIONAL DATA – Pot life

Application

- Area should be sheltered from airborne particulates and pollutants
- Avoid combustion gases or other sources of carbon dioxide that may promote amine blush.
- Ensure good ventilation during application and curing
- For tank lining, dehumidification equipment is highly recommended
- Provide shelter to prevent wind from affecting spray patterns
- Bulletin #1489 for further information on prevention, detection, and removal of amine blush
- Refer to INFORMATION SHEET 1434 for more details on ventilation requirements for tank lining applications

Material temperature

Material temperature during application should be between 50°F (10°C) and 90°F (32°C)

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Airless spray

- 45:1 pump or larger

Recommended thinner

AMERCOAT T-10 thinner or AMERCOAT 65 thinner

Nozzle orifice

0.017 – 0.019 in (approx. 0.43 – 0.48 mm)

Brush/roller

- Use a high quality natural bristle brush and/or solvent resistant, 3/8" nap roller. Ensure brush/roller is well loaded to avoid air entrainment. Multiple coats may be necessary to achieve adequate film-build
- Spray application is required for tank linings with the exception of stripe coating and application for small repair areas

Recommended thinner

AMERCOAT T-10 thinner or AMERCOAT 65 thinner

Cleaning solvent

AMERCOAT 12 CLEANER or AMERCOAT T-10 THINNER

ADDITIONAL DATA

Spreading rate and film thickness	
DFT	**Theoretical spreading rate**
1.0 mils (25 µm)	866 ft^2/US gal (21.6 m^2/l)
4.0 mils (100 µm)	217 ft^2/US gal (5.4 m^2/l)
6.0 mils (150 µm)	144 ft^2/US gal (3.6 m^2/l)

Note: Tank lining / pipe lining service 4 – 6 mils; (100 – 150 microns) 2 full coats + 2 stripe coats; Total system = 8 – 14 mils 1 coat at 6 – 10 mils for high temperature service with 880 glass flake.

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Overcoating interval for DFT up to 5.0 mils (125 µm)							
Overcoating with...	**Interval**	**50°F (10°C)**	**60°F (16°C)**	**70°F (21°C)**	**80°F (27°C)**	**90°F (32°C)**	**100°F (38°C)**
itself	Minimum	36 hours	28 hours	20 hours	15 hours	10 hours	3 hours
	Maximum	3 months	3 months	3 months	2 months	30 days	14 days

Notes:

- Dry times are dependent on air and surface temperatures as well as film thickness, ventilation, and relative humidity. Maximum recoating time is highly dependent upon actual surface temperatures – not simply air temperatures. Surface temperatures should be monitored, especially with sun-exposed or otherwise heated surfaces. Higher surface temperatures shorten the maximum recoat window
- Surface must be clean and dry. Any contamination must be identified and removed. Particular attention must be paid to surfaces exposed to sunlight where chalking may be present. In those situations, a further degree of cleaning may be required. PPG Technical Service can advise on suitable cleaning methods. If maximum recoat/topcoat time is exceeded, then roughen surface

Curing time for DFT up to 5.0 mils (125 µm)			
Substrate temperature	**Dry to touch**	**Dry to handle**	**Service- water immersion**
50°F (10°C)	8 hours	24 hours	14 days
60°F (16°C)	3 hours	16 hours	10 days
70°F (21°C)	1.5 hours	12 hours	7 days
80°F (27°C)	75 minutes	8 hours	6 days
90°F (32°C)	1 hour	6 hours	5 days
100°F (38°C)	40 minutes	4.5 hours	4 days

Note: Drying times are dependent on air and steel temperature, applied film thickness, ventilation and other environmental conditions

Pot life (at application viscosity)	
Mixed product temperature	**Pot life**
50°F (10°C)	10 hours
70°F (21°C)	6 hours
90°F (32°C)	3 hours

Heat cure procedures

- Allow the final coat of the lining to achieve a dry hard condition prior to heating above 120°F (49°C)
- Do not heat cure until after holiday detection has been accomplished (when specified)
- Ramp heat at a rate of no greater than 2°F (-17°C) / minute to the target temperature
- Surface temperatures must be measured at various elevations from top to bottom and in each cardinal direction. The lowest surface temperature must meet the minimum time/temperature requirements of the heat cure schedule. Record all temperatures

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Force Cure Schedule Based on Lowest Recorded Steel Temperature Readings	
Temperature	**Cure to service**
110°F (43°C)	3.5 days
120°F (49°C)	60 hours
130°F (54°C)	40 hours
140°F (60°C)	30 hours
150°F (66°C)	20 hours
160°F (71°C)	15 hours

SAFETY PRECAUTIONS

- For paint and recommended thinners see INFORMATION SHEETS 1430, 1431 and relevant Material Safety Data Sheets
- This is a solvent-borne paint and care should be taken to avoid inhalation of spray mist or vapor, as well as contact between the wet paint and exposed skin or eyes

WORLDWIDE AVAILABILITY

It is always the aim of PPG Protective and Marine Coatings to supply the same product on a worldwide basis. However, slight modification of the product is sometimes necessary to comply with local or national rules/circumstances. Under these circumstances an alternative product data sheet is used.

REFERENCES

• CONVERSION TABLES	INFORMATION SHEET	1410
• EXPLANATION TO PRODUCT DATA SHEETS	INFORMATION SHEET	1411
• SAFETY INDICATIONS	INFORMATION SHEET	1430
• SAFETY IN CONFINED SPACES AND HEALTH SAFETY, EXPLOSION HAZARD – TOXIC HAZARD	INFORMATION SHEET	1431
• DIRECTIVES FOR VENTILATION PRACTICE	INFORMATION SHEET	1434

WARRANTY

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LIMITATIONS OF LIABILITY

Packaging: Available in 1-gallon and 5-gallon kits

Product code	Description
AT 91-1	Buff
AT 91-235	Cirrus Gray
AT 91-3	White
AT 91-B	Hardener