

NOVAGUARD™ 840

DESCRIPTION

Two-component, solvent-free, amine-cured novolac phenolic epoxy coating

PRINCIPAL CHARACTERISTICS

- Suitable for heavy H2S wastewater environments
- Suitable for use on primed steel or direct to steel/concrete/masonry
- Good visibility due to light color
- Glossy and smooth appearance
- Reduced explosion risk and fire hazard
- Suitable for storage of unleaded gasolines
- Good chemical resistance against a wide range of chemicals and solvents
- A clear (semi-transparent) version is available for systems reinforced with chopped glass fibers or glass fiber mats
- Excellent resistance to crude oil up to 120°C (250°F)
- Can be applied by heavy-duty, single-feed, airless spray equipment (60:1)
- Meets the requirements of EI 1541 2.2 (coating systems for aviation fuel storage tanks and pipes)
- Meets NSF/ANSI Standard 61 for potable water when applied and used as described on <http://info.nsf.org/>
- Complies with FDA 21 CFR 175.300 criteria for food contact

COLOR AND GLOSS LEVEL

- Green, cream, clear (semi-transparent)
- Gloss

BASIC DATA AT 20°C (68°F)

Data for mixed product	
Number of components	Two
Mass density	1.3 kg/l (10.8 lb/US gal)
Volume solids	100%
VOC (Supplied)	Directive 2010/75/EU, SED: max. 106.0 g/kg max. 142.0 g/l (approx. 1.2 lb/US gal) EPA Method 24: 73.0 g/ltr (0.6 lb/USgal)
Recommended dry film thickness	300 - 600 µm (12.0 - 24.0 mils) depending on system
Theoretical spreading rate	3.3 m ² /l for 300 µm (134 ft ² /US gal for 12.0 mils)
Dry to touch	6 hours
Overcoating Interval	Minimum: 24 hours Maximum: 2 months
Full cure after	5 days
Shelf life	Base: at least 24 months when stored cool and dry Hardener: at least 24 months when stored cool and dry

Notes:



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- See ADDITIONAL DATA – Spreading rate and film thickness
- See ADDITIONAL DATA – Overcoating intervals
- See ADDITIONAL DATA – Curing time

RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES

Carbon steel

- Steel; blast cleaned to a minimum of SSPC-SP10 or ISO-SA2½, blasting profile 50 – 125 µm (2.0 – 5.0 mils)
- Steel with suitable primer (NOVAGUARD 260) must be dry and free from any contamination

Concrete

- Remove grease, oil and other penetrating contaminants according to ASTM D4258
- Abrade the surface per ASTM D4259 to remove all chalk and surface glaze or laitance. Achieve surface profile - ICRI CSP 3 to 5
- NOVAGUARD 840 with PPG 884 Additive or AMERCOAT 114A may be used as a pit filler for certain applications. Check with PPG Technical Service for guidance on chemical resistance
- Maximum recommended moisture transmission rate is 3 lbs/1,000 ft²/24 hours by moisture transmission test (ASTM F1869, calcium chloride test or by ASTM D4263, plastic sheet test)
- Moisture content should not exceed 4% (ASTM D4944, Calcium Carbide Gas method)

Substrate temperature and application conditions

- Substrate temperature during application and curing should be above 5°C (41°F)
- Substrate temperature during application and curing should be at least 3°C (5°F) above dew point

INSTRUCTIONS FOR USE

Mixing ratio by volume: base to hardener 4:1

- The temperature of the mixed base and hardener should preferably be at least 20°C (68°F)
- At lower temperature, the viscosity will be too high for spray application
- No thinner should be added
- For recommended application instructions, see working procedure

Induction time

0 minute

Note:

- No induction time required

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Pot life

1 hour at 20°C (68°F)

Note:

- See ADDITIONAL DATA – Pot life
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Airless spray

Recommended thinner

No thinner should be added

Nozzle orifice

Approx. 0.53 mm (0.021 in)

Nozzle pressure

At 20°C (68°F) paint temperature min. 28.0 MPa (approx. 280 bar; 4061 p.s.i.). At 30°C (86°F) min. 22.0 MPa (approx. 220 bar; 3191 p.s.i.)

Note:

- Use heavy-duty, single-feed, airless spray equipment, preferably 60:1 pump ratio and suitable high-pressure hoses
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Brush/roller

- Brush: for stripe coating and spot repair only

Recommended thinner

No thinner should be added

Cleaning solvent

- THINNER 90-53 or THINNER 90-83
 - Paint inside the spraying equipment must be removed before the pot life has been expired
 - All application equipment must be cleaned immediately after use
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ADDITIONAL DATA

Measuring wet film thickness

- A difference is often obtained between the measured apparent WFT and the real applied WFT. This is due to the thixotropy and the surface tension of the paint, which retards the release of air, trapped in the paint film for some time.
 - Recommendation is to apply a WFT, which is equal to the specified DFT plus 60 µm (2.4 mils)
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Spreading rate and film thickness	
DFT	Theoretical spreading rate
300 µm (12.0 mils)	3.3 m ² /l (134 ft ² /US gal)
600 µm (24.0 mils)	1.7 m ² /l (67 ft ² /US gal)

Overcoating interval for DFT up to 600 µm (24.0 mils)					
Overcoating with...	Interval	5°C (41°F)	10°C (50°F)	20°C (68°F)	30°C (86°F)
itself	Minimum	3.5 days	36 hours	24 hours	16 hours
	Maximum	3 months	3 months	2 months	1 month

Note:

- Surface should be dry and free from any contamination

Curing time for DFT up to 600 µm (24.0 mils)	
Substrate temperature	Service- water immersion
5°C (41°F)	4 days
10°C (50°F)	45 hours
20°C (68°F)	24 hours
30°C (86°F)	15 hours
40°C (104°F)	9 hours

Note:

- Time to Service- water immersion allows for tank test with fresh, brackish or sea water. Chemical solutions in water (acids, bases or fertilizer for instance) require full cure



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Curing time for DFT up to 600 µm (24.0 mils)			
Substrate temperature	Dry to handle	Minimum cure time for purely aliphatic petroleum product (see note)	Minimum cure time for all other chemicals
5°C (41°F)	60 hours	6.5 days	15 days
10°C (50°F)	30 hours	3 days	7 days
20°C (68°F)	16 hours	40 hours	5 days
30°C (86°F)	10 hours	25 hours	3 days
40°C (104°F)	6 hours	15 hours	48 hours

Notes:

- At the cure time for purely aliphatic petroleum products, crude oil, clean petroleum products / fuels and bio-diesel can be loaded. Gasoline/alcohol blends are not included in purely aliphatic petroleum products. Please contact your PPG representative for further details
- Adequate ventilation must be maintained during application and curing

Curing time for DFT up to 600 µm (24.0 mils)	
Substrate temperature	Dry to walk on
5°C (41°F)	3 days
10°C (50°F)	36 hours
20°C (68°F)	20 hours
30°C (86°F)	12 hours
40°C (104°F)	8 hours

Note:

- At the dry to walk on time care is still required to not exert local peak or static pressure. A slight recoverable imprint may be visible but this does not affect the coating performance. Dry to walk on time allows for coating inspection including holiday/spark testing.



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Pot life (at application viscosity)	
Mixed product temperature	Pot life
10°C (50°F)	2 hours
20°C (68°F)	1 hour
30°C (86°F)	45 minutes

Note:

- Due to exothermic reaction, temperature during and after mixing may increase

Product Qualifications

- Qualified for ANSI/NSF Standard 61 (potable water). For NSF application instructions, please visit the following website: <http://www.nsf.org/certified-products-systems/>
- Compliant with USDA Incidental Food Contact Requirements

SAFETY PRECAUTIONS

- Ventilation should be provided in confined spaces to maintain good visibility
- If workers are exposed to concentrations above the exposure limit, they must use appropriate personal protective equipment (PPE).
- Although this is a solvent-free paint, care should be taken to avoid inhalation of spray mist, as well as contact between the wet paint and exposed skin or eyes

WORLDWIDE AVAILABILITY

It is always the aim of PPG Protective & 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

- Guide | NOVAGUARD 840 | Chemical resistance guide
- Guide | Tank maintenance | Our guide to the economical repair of corroded tank bottoms
- Information sheet | Explanation of product data sheets

WARRANTY

PPG warrants (i) its title to the product, (ii) that the quality of the product conforms to PPG's specifications for such product in effect at the time of manufacture and (iii) that the product shall be delivered free of the rightful claim of any third person for infringement of any U.S. patent covering the product. THESE ARE THE ONLY WARRANTIES THAT PPG MAKES AND ALL OTHER EXPRESS OR IMPLIED WARRANTIES, UNDER STATUTE OR ARISING OTHERWISE IN LAW, FROM A COURSE OF DEALING OR USAGE OF TRADE, INCLUDING WITHOUT LIMITATION, ANY OTHER WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR USE, ARE DISCLAIMED BY PPG. Any claim under this warranty must be made by Buyer to PPG in writing within five (5) days of Buyer's discovery of the claimed defect, but in no event later than the expiration of the applicable shelf life of the product, or one year from the date of the delivery of the product to the Buyer, whichever is earlier. Buyer's failure to notify PPG of such non-conformance as required herein shall bar Buyer from recovery under this warranty.



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