PPG PHENGUARD™ 985

DESCRIPTION

Two-component, high-build, amine adduct-cured novolac phenolic epoxy coating

PRINCIPAL CHARACTERISTICS

- Excellent resistance to a wide range of organic acids, alcohols, edible oils, fats (regardless of free fatty acid content) and solvents
- Can be specified as 2 or 3 coat system
- Maximum cargo flexibility
- Good resistance to hot water

COLOR AND GLOSS LEVEL

- Offwhite, gray
- Cream on request
- Low sheen

Note:

- Any color can be used as primer, intermediate or finish by color preference

BASIC DATA AT 20°C (68°F)

Data for mixed product	
Number of components	Two
Mass density	1.7 kg/l (14.2 lb/US gal)
Volume solids	66 ± 2%
VOC (Supplied)	max. 339.0 g/l (approx. 2.8 lb/US gal)
Recommended dry film thickness	100 - 160 µm (4.0 - 6.3 mils)
Theoretical spreading rate	6.6 m^2/l for 100 µm (265 ft^2/US gal for 4.0 mils) 4.4 m^2/l for 150 µm (176 ft^2/US gal for 6.0 mils)
Dry to touch	2 hours
Overcoating Interval	Minimum: 36 hours Maximum: 28 days
Shelf life	Base: at least 12 months when stored cool and dry Hardener: at least 12 months when stored cool and dry

Notes:

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

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RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES

Substrate conditions

- Steel should be blast cleaned in situ to at least ISO-Sa2½
- Blasting profile 50 – 100 µm (2.0 – 4.0 mils)
- Steel must be free from rust, scale, shop primer and any other contamination

IMO-MSC.288(87) requirements for cargo tanks of crude oil tankers

- Steel; blast cleaned to ISO Sa2½ or SSPC-SP10, blasting profile 50 – 75 µm (2.0 – 3.0 mils)
- Steel; ISO 8501-3:2006 grade P2, with all edges treated to a rounded radius of minimum 2 mm (0.079 in) or subject to three pass grinding or at least equivalent process before painting
- Dust quantity on the surface to be coated must not exceed rating "1" for dust size class "3", "4" or "5" (ISO 8502-3-2017). Lower dust size classes (“1” and/or “2”) to be removed if visible without magnification.
- Previous coat must be dry and free from any contamination

Substrate temperature and application conditions

- Substrate temperature during application and curing should be above 10°C (50°F)
- Substrate temperature during application and curing should be at least 3°C (5°F) above dew point

SYSTEM SPECIFICATION

For use as a tank coating

- 2 coats of 150 µm (6.0 mils) each, or 3 coats of 100 µm (4.0 mils) each, to reach 300 µm (12.0 mils) total dry film thickness

Notes:

- The specified total minimum DFT is 300µm, the average maximum DFT is 450µm
- On critical areas of a structure painted with PHENGUARD 985, 10% of the spot readings can be between 600 – 800 µm (24.0 – 32.0 mils). Individual gauge readings can be between 800 – 900 µm (32.0 – 35.0 mils). Critical areas are e.g. weld seams, edges, bolts, corners, nuts and areas of difficult access.

System for cargo tanks of Crude Oil Tankers according to IMO resolution MSC.288(87)

- 2 coats of 160 µm (6.3 mils) each, to reach 320 µm (12.6 mils) total DFT
- Application requirement strictly in accordance with IMO PSPC MSC.288(87), blasting profile 50 – 75 µm (2.0 – 3.0 mils)

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INSTRUCTIONS FOR USE

Mixing ratio by volume: base to hardener 88:12 (7.33:1)

- The temperature of the paint should preferably be above 15°C (59°F), otherwise extra thinner may be required to obtain application viscosity
- Adding too much thinner results in reduced sag resistance and slower cure
- Thinner should be added after mixing the components

Table of Induction time

Mixed product induction time	
Mixed product temperature	**Induction time**
15°C (59°F)	20 minutes
20°C (68°F)	15 minutes
25°C (77°F)	10 minutes

Pot life

4 hours at 20°C (68°F)

Air spray

Recommended thinner

THINNER 91-92

Volume of thinner

0 - 10%, depending on required thickness and application conditions

Nozzle orifice

2.0 mm (approx. 0.079 in)

Nozzle pressure

0.3 MPa (approx. 3 Bar; 44 p.s.i.)

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Airless spray

Recommended thinner

THINNER 91-92

Volume of thinner

0 - 5%, depending on required thickness and application conditions

Nozzle orifice

Approx. 0.43 – 0.53 mm (0.017 – 0.021 in)

Nozzle pressure

15.0 MPa (approx. 150 bar; 2176 p.s.i.)

Brush/roller

- Brush: for stripe coating and spot repair only

Recommended thinner

THINNER 91-92

Volume of thinner

0 – 5%

Cleaning solvent

- THINNER 90-53

ADDITIONAL DATA

Spreading rate and film thickness	
DFT	**Theoretical spreading rate**
100 µm (4.0 mils)	6.6 m^2/l (265 ft^2/US gal)
150 µm (6.0 mils)	4.4 m^2/l (176 ft^2/US gal)
160 µm (6.3 mils)	4.1 m^2/l (168 ft^2/US gal)

Note:

- Maximum DFT when brushing: 80 µm (3.1 mils)

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Overcoating interval for DFT up to 100 µm (4.0 mils) when used as primer						
Overcoating with...	**Interval**	**10°C (50°F)**	**15°C (59°F)**	**20°C (68°F)**	**30°C (86°F)**	**40°C (104°F)**
itself	Minimum	60 hours	48 hours	36 hours	24 hours	16 hours
	Maximum	28 days	28 days	28 days	21 days	10 days

Notes:

- When used as a primer under solvent-free tanklinings the DFT must be limited to a maximum of 100 µm (4.0 mils)
- The performance of the applied system strongly depends on the curing degree of the first coat at time of recoating. Therefore overcoating time between 1st and 2nd coat is extended in comparison between 2nd and 3rd coat (see overcoating details)

Overcoating interval for DFT up to 160 µm (6.3 mils) when used as primer						
Overcoating with...	**Interval**	**10°C (50°F)**	**15°C (59°F)**	**20°C (68°F)**	**30°C (86°F)**	**40°C (104°F)**
itself	Minimum	3 days	58 hours	45 hours	30 hours	20 hours
	Maximum	28 days	28 days	28 days	21 days	10 days

Note:

- When used as a primer under solvent-free tanklinings the DFT must be limited to a maximum of 100 µm (4.0 mils)

Overcoating interval for DFT up to 100 µm (4.0 mils) when used as intermediate						
Overcoating with...	**Interval**	**10°C (50°F)**	**15°C (59°F)**	**20°C (68°F)**	**30°C (86°F)**	**40°C (104°F)**
itself	Minimum	36 hours	32 hours	24 hours	16 hours	12 hours
	Maximum	28 days	28 days	28 days	21 days	10 days

Notes:

- Surface should be dry and free from any contamination
- For stripe coats of PPG PHENGUARD 985, use the same overcoating intervals as for a full intermediate coat with DFT up to 100 µm (4.0 mils)

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Curing time for full system - DFT up to 320 µm (12.6 mils)	
Substrate temperature	**Minimum curing time before transport of cargoes without note 4, 7 or 11 and ballast water or tank test with sea water**
10°C (50°F)	14 days
15°C (59°F)	14 days
20°C (68°F)	10 days
30°C (86°F)	7 days
40°C (104°F)	5 days

Notes:

- Minimum post-curing time before transport of cargoes with note 4, 7 or 11: 3 months
- For detailed information on resistance and resistance notes, please refer to the latest issue of the cargo resistance list
- For transport of methanol and vinyl acetate monomer, a hot cure is required, which cannot be substituted by a service period of 3-months with non-aggressive cargoes
- Adequate ventilation must be maintained during application and curing

Pot life (at application viscosity)	
Mixed product temperature	**Pot life**
10°C (50°F)	6 hours
20°C (68°F)	4 hours
30°C (86°F)	1.5 hours

SAFETY PRECAUTIONS

- 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
- See Safety Data Sheet and product label for complete safety and precaution requirements

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.

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REFERENCES

- Guide | PPG PHENGUARD | Tankcoating - Hot cure
- Information sheet | Explanation of product data sheets
- Guide | PPG SIGMACARE PLUS | Online guide to maintenance at sea

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