

# PHENGUARD™ 965

## DESCRIPTION

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

## PRINCIPAL CHARACTERISTICS

- PHENGUARD 965 system
- Excellent resistance to a wide range of organic acids, alcohols, fats (regardless of free fatty acid content) and solvents
- Maximum cargo flexibility
- Low cargo absorption
- Easy to clean
- Good resistance to hot water
- Can be applied and cures at temperatures down to 5°C (41°F)
- Good application properties, resulting in a smooth surface

## COLOR AND GLOSS LEVEL

- Offwhite, pink, gray
- Eggshell

## BASIC DATA AT 20°C (68°F)

Data for mixed product	
<b>Number of components</b>	Two
<b>Mass density</b>	1.7 kg/l (14.2 lb/US gal)
<b>Volume solids</b>	68 ± 2%
<b>VOC (Supplied)</b>	Directive 1999/13/EC, SED: max. 195.0 g/kg max. 329.0 g/l (approx. 2.7 lb/US gal) EPA Method 24: 310.0 g/ltr (2.6 lb/USgal)
<b>Recommended dry film thickness</b>	100 µm (4.0 mils)
<b>Theoretical spreading rate</b>	6.8 m <sup>2</sup> /l for 100 µm (273 ft <sup>2</sup> /US gal for 4.0 mils)
<b>Dry to touch</b>	2 hours
<b>Overcoating Interval</b>	Minimum: 8 hours Maximum: 14 days
<b>Full cure after</b>	See curing table
<b>Shelf life</b>	Base: at least 12 months when stored cool and dry Hardener: at least 12 months when stored cool and dry



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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
- The substrate must be perfectly dry before and during application of PHENGUARD 965

### 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

## SYSTEM SPECIFICATION

- PHENGUARD 965 offwhite: 100 µm (4.0 mils)
- PHENGUARD 965 pink: 100 µm (4.0 mils)
- PHENGUARD 965 grey: 100 µm (4.0 mils)

## INSTRUCTIONS FOR USE

### Mixing ratio by volume: base to hardener 87:13

- The temperature of the mixed base and hardener 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
- Thinner should be added after mixing the components

### Induction time

Allow induction time before use

Mixed product induction time	
Mixed product temperature	Induction time
5°C (41°F)	20 minutes
10°C (50°F)	15 minutes
15°C (59°F)	10 minutes

### Pot life

2 hours at 20°C (68°F)

Note: See ADDITIONAL DATA – Pot life



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## **Air spray**

### **Recommended thinner**

THINNER 91-92

### **Volume of thinner**

5 - 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 - 10%, depending on required thickness and application conditions

### **Nozzle orifice**

Approx. 0.46 - 0.53 mm (0.018 - 0.021 in)

### **Nozzle pressure**

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

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## **Brush/roller**

### **Recommended thinner**

THINNER 91-92

### **Volume of thinner**

0 - 5%

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## **Cleaning solvent**

THINNER 90-53

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## ADDITIONAL DATA

Spreading rate and film thickness	
DFT	Theoretical spreading rate
100 µm (4.0 mils)	6.8 m <sup>2</sup> /l (273 ft <sup>2</sup> /US gal)
125 µm (5.0 mils)	5.4 m <sup>2</sup> /l (218 ft <sup>2</sup> /US gal)

Note: Maximum DFT when brushing: 60 µm (2.4 mils)

Overcoating interval for DFT up to 100 µm (4.0 mils)						
Overcoating with...	Interval	5°C (41°F)	10°C (50°F)	15°C (59°F)	20°C (68°F)	30°C (86°F)
itself	Minimum	24 hours	20 hours	14 hours	8 hours	6 hours
	Maximum	28 days	25 days	21 days	14 days	7 days

Note: Surface should be dry and free from any contamination

Curing time for DFT up to 100 µm (4.0 mils)	
Substrate temperature	Minimum curing time before transport of cargoes without note 4, 7, 8 or 11 and ballast water or tank test with sea water
5°C (41°F)	7 days
10°C (50°F)	5 days
15°C (59°F)	4 days
20°C (68°F)	3 days
30°C (86°F)	48 hours

### Notes:

- Minimum curing time of PHENGUARD 965 system before transport of cargoes with note 4, 7, 8 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 (please refer to INFORMATION SHEETS 1433 and 1434)
- When used as a primer under solvent-free tank-linings the DFT must be limited to a maximum of 100 µm (4.0 mils)

Pot life (at application viscosity)	
Mixed product temperature	Pot life
5°C (41°F)	8 hours
10°C (50°F)	6 hours
15°C (59°F)	4 hours
20°C (68°F)	2 hours
30°C (86°F)	1 hour



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## 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
• SAFE WORKING IN CONFINED SPACES	INFORMATION SHEET	1433
• DIRECTIVES FOR VENTILATION PRACTICE	INFORMATION SHEET	1434
• CLEANING OF STEEL AND REMOVAL OF RUST	INFORMATION SHEET	1490
• SPECIFICATION FOR MINERAL ABRASIVES	INFORMATION SHEET	1491
• RELATIVE HUMIDITY – SUBSTRATE TEMPERATURE – AIR TEMPERATURE	INFORMATION SHEET	1650

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