PHENGUARD 935

DESCRIPTION
two component high build amine adduct cured phenolic epoxy coating

PRINCIPAL CHARACTERISTICS
- second coat in the Phenguard tankcoating system
- excellent resistance to a wide range of organic acids, alcohols, edible oils, fats (regardless of free fatty acid content) and solvents
- maximum cargo flexibility
- low cargo absorption
- good resistance to hot water
- Recognized corrosion control coating (Lloyd's register), see sheet 1886
- good application properties, resulting in a smooth surface

COLOURS AND GLOSS
pink - eggshell

BASIC DATA AT 20°C
(1 g/cm³ = 8.25 lb/US gal; 1 m²/l = 40.7 ft²/US gal)
(data for mixed product)
Mass density
1.7 g/cm³
Volume solids
66 ± 2%
VOC (supplied)
max. 191 g/kg (Directive 1999/13/EC, SED)
max. 315 g/l (approx. 2.6 lb/gal)
Recommended dry film thickness
100 µm *
Theoretical spreading rate
6.6 m²/l for 100 µm *
Touch dry after
2 hours
Overcoating interval
min. 24 hours *
max. 21 days *
Curing time
see curing table *

Shelf life (cool and dry place)
at least 12 months
* see additional data

RECOMMENDED
SUBSTRATE CONDITIONS
- previous coat of Phenguard 930; dry and free from any contamination
- the substrate must be perfectly dry before and during application of Phenguard 935
- substrate temperature must be above 10°C and at least 3°C above dew point during application and curing

SYSTEM SPECIFICATION
marine system sheet: 3141
tankcoatings system sheet: 3322

INSTRUCTIONS FOR USE
mixing ratio by volume: base to hardener 88 : 12
- the temperature of the mixed base and hardener should preferably be above 15°C, otherwise extra solvent may be required to obtain application viscosity
- too much solvent results in reduced sag resistance and slower cure
- thinner should be added after mixing the components
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**Induction time**

allow induction time before use

15°C - 20 min.

20°C - 15 min.

25°C - 10 min.

**Pot life**

4 hours at 20°C *

* see additional data

**AIRLESS SPRAY**

**Recommended thinner**

Thinner 91-92

**Volume of thinner**

2 - 10%, depending on required thickness and application conditions

**Nozzle orifice**

approx. 0.46 - 0.53 mm (= 0.018 - 0.021 in)

**Nozzle pressure**

15 MPa (= approx. 150 bar; 2130 p.s.i.)

**AIR SPRAY**

**Recommended thinner**

Thinner 91-92

**Volume of thinner**

2 - 10%, depending on required thickness and application conditions

**Nozzle orifice**

2 mm

**Nozzle pressure**

0.3 MPa (= approx. 3 bar; 43 p.s.i.)

**BRUSH/ROLLER**

**Recommended thinner**

Thinner 91-92

**Volume of thinner**

0 - 5%

**CLEANING SOLVENT**

Thinner 90-53

**SAFETY PRECAUTIONS**

for paint and recommended thinners see safety 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 vapour as well as contact between the wet paint and exposed skin or eyes

**ADDITIONAL DATA**

**Film thickness and spreading rate**

| theoretical spreading rate m²/l | 6.6 | 5.3 |
| dft in µm | 100 | 125 |

max. dft when brushing: 60 µm
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Overcoating table for Phenguard 935

<table>
<thead>
<tr>
<th>Substrate Temperature</th>
<th>10°C</th>
<th>15°C</th>
<th>20°C</th>
<th>30°C</th>
<th>40°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Interval</td>
<td>36 hours</td>
<td>32 hours</td>
<td>24 hours</td>
<td>16 hours</td>
<td>12 hours</td>
</tr>
<tr>
<td>Maximum Interval</td>
<td>28 days</td>
<td>25 days</td>
<td>21 days</td>
<td>14 days</td>
<td>7 days</td>
</tr>
</tbody>
</table>

- Surface should be dry and free from any contamination

Curing table

<table>
<thead>
<tr>
<th>Substrate Temperature</th>
<th>Min. Curing Time of Phenguard Tankcoating System Before Transport of Cargoes Without Note 4, 7, 8 or 11 and Ballast Water and Tanktest With Sea Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>10°C</td>
<td>14 days</td>
</tr>
<tr>
<td>15°C</td>
<td>14 days</td>
</tr>
<tr>
<td>20°C</td>
<td>10 days</td>
</tr>
<tr>
<td>30°C</td>
<td>7 days</td>
</tr>
<tr>
<td>40°C</td>
<td>5 days</td>
</tr>
</tbody>
</table>

- Minimum curing time of Phenguard tankcoating 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 cargo 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 sheets 1433 and 1434)
- 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)

Pot life (at application viscosity)

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Pot Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>10°C</td>
<td>6 hours</td>
</tr>
<tr>
<td>20°C</td>
<td>4 hours</td>
</tr>
<tr>
<td>30°C</td>
<td>1.5 hour</td>
</tr>
</tbody>
</table>
Whilst it is always the aim of PPG Protective & Marine Coatings to supply the same product on a worldwide basis, 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

| Explanation to product data sheets | see information sheet 1411 |
| Safety indications                  | see information sheet 1430 |
| Safety in confined spaces and health safety | |
| Explosion hazard - toxic hazard    | see information sheet 1431 |
| Safe working in confined spaces    | see information sheet 1433 |
| Directives for ventilation practice| see information sheet 1434 |
| Specification for mineral abrasives | see information sheet 1491 |

LIMITATION OF LIABILITY

The information in this data sheet is based upon laboratory tests we believe to be accurate and is intended for guidance only. All recommendations or suggestions relating to the use of the Sigma Coatings products made by PPG Protective & Marine Coatings, whether in technical documentation, or in response to a specific enquiry, or otherwise, are based on data which to the best of our knowledge are reliable. The products and information are designed for users having the requisite knowledge and industrial skills and it is the end-user's responsibility to determine the suitability of the product for its intended use.

PPG Protective & Marine Coatings has no control over either the quality or condition of the substrate, or the many factors affecting the use and application of the product. PPG Protective & Marine Coatings does therefore not accept any liability arising from loss, injury or damage resulting from such use or the contents of this data sheet (unless there are written agreements stating otherwise).

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This data sheet replaces and annuls all previous issues and it is therefore the user's responsibility to ensure that this sheet is current prior to using the product.

The English text of this document shall prevail over any translation thereof.