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SIGMASHIELD™ 420

DESCRIPTION
Two-component, reinforced high solids polyamine adduct cured epoxy coating

PRINCIPAL CHARACTERISTICS
• Coating for cargo tanks of bulk- or oil carriers and storage tanks
• Buildcoat for underwater and boottop systems
• Excellent abrasion and impact resistance
• Outstanding (sea)water resistance
• Easy to clean

COLOR AND GLOSS LEVEL
• Gray, redbrown (other colors available on request)
• Gloss

BASIC DATA AT 20°C (68°F)

<table>
<thead>
<tr>
<th>Data for mixed product</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of components</td>
<td>Two</td>
</tr>
<tr>
<td>Mass density</td>
<td>1.6 kg/l (13.4 lb/US gal)</td>
</tr>
<tr>
<td>Volume solids</td>
<td>81 ± 2%</td>
</tr>
<tr>
<td>VOC (Supplied)</td>
<td>Directive 1999/13/EC, SED: max. 153.0 g/kg UK PG 6/23(92) Appendix 3: max. 239.0 g/l (approx. 2.0 lb/US gal)</td>
</tr>
<tr>
<td>Recommended dry film thickness</td>
<td>125 - 200 µm (5.0 - 8.0 mils) depending on system</td>
</tr>
<tr>
<td>Theoretical spreading rate</td>
<td>5.4 m²/l for 150 µm (217 ft²/US gal for 6.0 mils) 4.1 m²/l for 200 µm (162 ft²/US gal for 8.0 mils)</td>
</tr>
<tr>
<td>Dry to touch</td>
<td>3 hours</td>
</tr>
<tr>
<td>Overcoating Interval</td>
<td>Minimum: 3.5 hours  Maximum: 14 days</td>
</tr>
<tr>
<td>Full cure after</td>
<td>5 days</td>
</tr>
<tr>
<td>Shelf life</td>
<td>Base: at least 24 months when stored cool and dry  Hardener: at least 24 months when stored cool and dry</td>
</tr>
</tbody>
</table>

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

RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES

Substrate conditions
• Previous coat must be dry and free from any contamination
SIGMASHIELD™ 420

Substrate temperature and application conditions

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

INSTRUCTIONS FOR USE

Mixing ratio by volume: base to hardener 75:25 (3:1)

- 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

Induction time
None

Pot life
1.5 hours

Note: See ADDITIONAL DATA – Pot life

Air spray

Recommended thinner
THINNER 91-92

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

Nozzle orifice
1.7 – 2.0 mm (approx. 0.070 – 0.079 in)

Nozzle pressure
0.3 - 0.4 MPa (approx. 3 - 4 bar; 44 - 58 p.s.i.)
Airless spray

**Recommended thinner**
THINNER 91-92

**Volume of thinner**
0 - 10% for a DFT of 100 µm (4.0 mils); 0 - 5% for a DFT of 200 µm (8.0 mils)

**Nozzle orifice**
Approx. 0.53 – 0.69 mm (0.021 – 0.027 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**

<table>
<thead>
<tr>
<th>DFT</th>
<th>Theoretical spreading rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 µm (4.0 mils)</td>
<td>8.1 m²/l (325 ft²/US gal)</td>
</tr>
<tr>
<td>150 µm (6.0 mils)</td>
<td>5.4 m²/l (217 ft²/US gal)</td>
</tr>
<tr>
<td>175 µm (7.0 mils)</td>
<td>4.6 m²/l (186 ft²/US gal)</td>
</tr>
<tr>
<td>200 µm (8.0 mils)</td>
<td>4.1 m²/l (162 ft²/US gal)</td>
</tr>
</tbody>
</table>

Note: Maximum DFT when brushing: 75 µm (3.0 mils)
SIGMASHIELD™ 420

Overcoating interval for DFT up to 150 µm (6.0 mils)

<table>
<thead>
<tr>
<th>Overcoating with...</th>
<th>Interval</th>
<th>5°C (41°F)</th>
<th>10°C (50°F)</th>
<th>20°C (68°F)</th>
<th>30°C (86°F)</th>
<th>40°C (104°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>epoxy coatings</td>
<td>Minimum</td>
<td>14 hours</td>
<td>7 hours</td>
<td>3.5 hours</td>
<td>2 hours</td>
<td>1.5 hours</td>
</tr>
<tr>
<td></td>
<td>Maximum</td>
<td>28 days</td>
<td>14 days</td>
<td>14 days</td>
<td>7 days</td>
<td>4 days</td>
</tr>
<tr>
<td>polyurethanes</td>
<td>Minimum</td>
<td>22 hours</td>
<td>14 hours</td>
<td>10 hours</td>
<td>6 hours</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>Maximum</td>
<td>28 days</td>
<td>14 days</td>
<td>14 days</td>
<td>7 days</td>
<td>4 days</td>
</tr>
</tbody>
</table>

Note: Surface should be dry and free from any contamination

Curing time for DFT up to 150 µm (6.0 mils)

<table>
<thead>
<tr>
<th>Substrate temperature</th>
<th>Dry to handle</th>
<th>Service- water immersion</th>
<th>Full cure</th>
</tr>
</thead>
<tbody>
<tr>
<td>5°C (41°F)</td>
<td>15 hours</td>
<td>10 days</td>
<td>17 days</td>
</tr>
<tr>
<td>10°C (50°F)</td>
<td>8 hours</td>
<td>7 days</td>
<td>14 days</td>
</tr>
<tr>
<td>20°C (68°F)</td>
<td>3.5 hours</td>
<td>5 days</td>
<td>7 days</td>
</tr>
<tr>
<td>30°C (86°F)</td>
<td>2 hours</td>
<td>4 days</td>
<td>5 days</td>
</tr>
<tr>
<td>40°C (104°F)</td>
<td>1.5 hours</td>
<td>3 days</td>
<td>3 days</td>
</tr>
</tbody>
</table>

Notes:
- For cargo hold application: for full cure for hard angular cargoes, please contact your nearest PPG Protective & Marine Coatings sales office
- Adequate ventilation must be maintained during application and curing (please refer to INFORMATION SHEETS 1433 and 1434)
- Should SIGMASHIELD 420 or the total coating system (2 x 125 µm/2 x 5.0 mils) be applied in excess of the specified dry film thickness, then the time necessary to reach full cure will be increased

Pot life (at application viscosity)

<table>
<thead>
<tr>
<th>Mixed product temperature</th>
<th>Pot life</th>
</tr>
</thead>
<tbody>
<tr>
<td>10°C (50°F)</td>
<td>3 hours</td>
</tr>
<tr>
<td>20°C (68°F)</td>
<td>1.5 hours</td>
</tr>
<tr>
<td>30°C (86°F)</td>
<td>45 minutes</td>
</tr>
</tbody>
</table>

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
- EXPLANATION TO PRODUCT DATA SHEETS
- SAFETY INDICATIONS
- SAFETY IN CONFINED SPACES AND HEALTH SAFETY, EXPLOSION HAZARD – TOXIC HAZARD
- SAFE WORKING IN CONFINED SPACES
- DIRECTIVES FOR VENTILATION PRACTICE
- RELATIVE HUMIDITY – SUBSTRATE TEMPERATURE – AIR TEMPERATURE

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