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SIGMASHIELD™ 1200

DESCRIPTION
Two-component, abrasion-resistant, solvent-free, amine-cured phenolic epoxy coating

PRINCIPAL CHARACTERISTICS
• Single coat system designed for under water hull of ice going and ice breaking vessels
• Recognised by Lloyd’s register as an abrasion resistant ice coating
• Excellent abrasion and impact resistance
• Resistant to well designed cathodic protection
• Low coefficient of friction
• Suitable for new construction and for maintenance/repair
• Also suitable for tanks and other structures requiring abrasion resistance
• Excellent resistance to crude oil up to 120°C (250°F)
• Excellent water resistance
• Good chemical resistance against a wide range of chemicals and solvents
• Can be applied by heavy-duty, single-feed, airless spray equipment (60:1)
• Reduced explosion risk and fire hazard

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

BASIC DATA AT 20°C (68°F)

<table>
<thead>
<tr>
<th>Data for mixed product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of components</td>
</tr>
<tr>
<td>Mass density</td>
</tr>
<tr>
<td>Volume solids</td>
</tr>
<tr>
<td>VOC (Supplied)</td>
</tr>
<tr>
<td>Recommended dry film thickness</td>
</tr>
<tr>
<td>Theoretical spreading rate</td>
</tr>
<tr>
<td>Dry to touch</td>
</tr>
<tr>
<td>Overcoating Interval</td>
</tr>
<tr>
<td>Full cure after</td>
</tr>
</tbody>
</table>
SIGMASHIELD™ 1200

Data for mixed product

<table>
<thead>
<tr>
<th></th>
<th>Base: at least 24 months when stored cool and dry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shelf life</td>
<td>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
- Steel; blast cleaned to a minimum of ISO-Sa2½, blasting profile 50 – 100 µm (2.0 – 4.0 mils)
- Surface must be dry and free from any contamination

Substrate temperature and application conditions
- Substrate temperature during application 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
- The DFT of one layer should not exceed 1100 µm (44.0 mils) on overlap areas in order to avoid sagging
- For abrasion resistant ice coating for ships, 400-500 µm (16.0-20.0 mils) dft is recommended

INSTRUCTIONS FOR USE

Mixing ratio by volume: base to hardener 80:20 (4:1)
- When mixing, the temperature of the base and hardener should be at least 20°C (68°F)
- No thinner should be added
- At lower temperature, the viscosity will be too high for spray application

Induction time
None

Pot life
1 hour at 20°C (68°F)

Note: See ADDITIONAL DATA – Pot life
SIGMASHIELD™ 1200

**Airless spray**
- Heavy-duty, single-feed airless spray equipment preferably 60:1 pump ratio and suitable high-pressure hoses
- Can be applied with plural component equipment
- Consult PPG Protective & Marine Coatings for further details

**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.)

**Brush/roller**
- For stripe coating and spot repair only

**Recommended thinner**
No thinner should be added

**Cleaning solvent**
THINNER 90-53 or THINNER 90-83

**Notes:**
- All application equipment must be cleaned immediately after use
- Paint inside the spraying equipment must be removed before the pot life has been expired

**ADDITIONAL DATA**

<table>
<thead>
<tr>
<th>DFT</th>
<th>Theoretical spreading rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>400 µm</td>
<td>2.5 m²/l (100 ft²/US gal)</td>
</tr>
<tr>
<td>500 µm</td>
<td>2.0 m²/l (80 ft²/US gal)</td>
</tr>
<tr>
<td>750 µm</td>
<td>1.3 m²/l (53 ft²/US gal)</td>
</tr>
</tbody>
</table>

Note: Maximum recommended dft for complex structures is 1100 µm (44.0 mils)
Overcoating interval for DFT up to 500 µm (20.0 mils)

<table>
<thead>
<tr>
<th>Overcoating with...</th>
<th>Interval</th>
<th>10°C (50°F)</th>
<th>20°C (68°F)</th>
<th>30°C (86°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>itself, SIGMACOVER 555 and SIGMACOVER 456</td>
<td>Minimum</td>
<td>36 hours</td>
<td>24 hours</td>
<td>16 hours</td>
</tr>
<tr>
<td></td>
<td>Maximum exposed to direct sunshine</td>
<td>22 days</td>
<td>14 days</td>
<td>7 days</td>
</tr>
<tr>
<td></td>
<td>Maximum NOT exposed to direct sunshine</td>
<td>3 months</td>
<td>2 months</td>
<td>1 month</td>
</tr>
<tr>
<td>SIGMADUR 550</td>
<td>Minimum</td>
<td>36 hours</td>
<td>24 hours</td>
<td>16 hours</td>
</tr>
<tr>
<td></td>
<td>Maximum exposed to direct sunshine</td>
<td>14 days</td>
<td>7 days</td>
<td>4 days</td>
</tr>
<tr>
<td></td>
<td>Maximum NOT exposed to direct sunshine</td>
<td>3 months</td>
<td>2 months</td>
<td>1 month</td>
</tr>
</tbody>
</table>

Note: Surface should be dry and free from any contamination

Curing time for DFT up to 500 µm (20 mils)

<table>
<thead>
<tr>
<th>Substrate temperature</th>
<th>Dry to handle</th>
<th>Full cure</th>
</tr>
</thead>
<tbody>
<tr>
<td>10°C (50°F)</td>
<td>30 hours</td>
<td>7 days</td>
</tr>
<tr>
<td>20°C (68°F)</td>
<td>16 hours</td>
<td>5 days</td>
</tr>
<tr>
<td>30°C (86°F)</td>
<td>10 hours</td>
<td>3 days</td>
</tr>
</tbody>
</table>

Note: Adequate ventilation must be maintained during application and curing (please refer to INFORMATION SHEETS 1433 and 1434)

Pot life (at application viscosity)

<table>
<thead>
<tr>
<th>Mixed product temperature</th>
<th>Pot life</th>
</tr>
</thead>
<tbody>
<tr>
<td>20°C (68°F)</td>
<td>1 hour</td>
</tr>
<tr>
<td>30°C (86°F)</td>
<td>45 minutes</td>
</tr>
</tbody>
</table>

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

SAFETY PRECAUTIONS

- For paint and recommended thinners see INFORMATION SHEETS 1430, 1431 and relevant Material Safety Data Sheets
- 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
- Ventilation should be provided in confined spaces to maintain good visibility
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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
- CLEANING OF STEEL AND REMOVAL OF RUST
- SPECIFICATION FOR MINERAL ABRASIVES
- RELATIVE HUMIDITY – SUBSTRATE TEMPERATURE – AIR TEMPERATURE

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