SIGMASHIELD™ 220

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

PRINCIPAL CHARACTERISTICS
- General-purpose primer for coating systems for steel
- Good abrasion resistance
- Outstanding sea water resistance
- Excellent corrosion resistance
- Good resistance against chemically-polluted water
- Resistant to well designed/controlled cathodic protection

COLOR AND GLOSS LEVEL
- Yellow/green
- 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>
<tr>
<td>Shelf life</td>
</tr>
</tbody>
</table>

Notes:
- See ADDITIONAL DATA – Spreading rate and film thickness
- See ADDITIONAL DATA – Overcoating intervals
- See ADDITIONAL DATA – Curing time
SIGMASHIELD™ 220

RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES

**Immersion exposure**
- Steel; blast cleaned to ISO-Sa2½, blasting profile 40 – 70 µm (1.6 – 2.8 mils)
- Steel with approved zinc silicate shop primer; sweep blasted to SPSS-Ss or powertool cleaned to SPSS-Pt3
- Surface must be dry and free from any contamination

**Atmospheric exposure conditions**
- Steel; blast cleaned to ISO-Sa2 or ISO-Sa2½, blasting profile 40 – 70 µm (1.6 – 2.8 mils)
- Steel; hydrojetted to VIS WJ2/3L
- Steel with approved shop primer; power tool cleaned to SPSS-Pt2
- Surface must be dry and free from any contamination

**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
- Relative humidity during application and curing should not exceed 85%

SYSTEM SPECIFICATION

- ANTICORROSIVE SYSTEMS FOR UNDERWATER AND BOOTTOP - SYSTEM SHEET 3101
- SYSTEMS FOR BOOTTOP AND TOPSIDE - SYSTEM SHEET 3102
- SYSTEMS FOR DECKS – SYSTEM SHEET 3103
- SYSTEMS FOR CARGO HOLDS – SYSTEM SHEET 3107

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**

2 hours at 20°C (68°F)

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
1.5 – 3.0 mm (approx. 0.060 – 0.110 in)

Nozzle pressure
0.2 - 0.4 MPa (approx. 2 - 4 bar; 29 - 58 p.s.i.)

Airless spray

Recommended thinner
THINNER 91-92

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

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.)

Brush/roller
• Only for touch-up and spot repair

Recommended thinner
THINNER 91-92

Volume of thinner
0 – 5%

Cleaning solvent
THINNER 90-53
ADDITIONAL DATA

### Spreading rate and film thickness

<table>
<thead>
<tr>
<th>DFT</th>
<th>Theoretical spreading rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 µm (4.0 mils)</td>
<td>7.8 m²/l (313 ft²/US gal)</td>
</tr>
<tr>
<td>125 µm (5.0 mils)</td>
<td>6.2 m²/l (250 ft²/US gal)</td>
</tr>
</tbody>
</table>

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

### 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>28 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>28 days</td>
<td>14 days</td>
<td>7 days</td>
<td>4 days</td>
</tr>
</tbody>
</table>

Notes:
- Adequate ventilation must be maintained during application and curing (please refer to INFORMATION SHEETS 1433 and 1434)
- 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>14 hours</td>
<td>10 days</td>
<td>17 days</td>
</tr>
<tr>
<td>10°C (50°F)</td>
<td>7 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>

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>10°C (50°F)</td>
<td>3 hours</td>
</tr>
<tr>
<td>20°C (68°F)</td>
<td>2 hours</td>
</tr>
<tr>
<td>30°C (86°F)</td>
<td>1 hour</td>
</tr>
</tbody>
</table>
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
- For paint and recommended thinners see INFORMATION SHEETS 1430, 1431 and relevant Material Safety Data Sheets

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/situations. 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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