# SIGMASHIELD™ 905

## DESCRIPTION

Two-component, glass flake reinforced, solvent-free, amine-cured epoxy coating

## PRINCIPAL CHARACTERISTICS

- Suitable for both marine and offshore use
- One-coat protection for cargo holds with excellent corrosion resistance
- Excellent abrasion and impact resistance, especially to hard, angular cargoes
- Good resistance to various chemicals
- Good visibility due to light color
- Reduced explosion risk and fire hazard
- Can be applied by heavy-duty, single-feed, airless spray equipment (60:1)
- Ideal for immersed, non-immersed and partially immersed such as splash zones, decks etc.

## COLOR AND GLOSS LEVEL

- Green
- Gloss

## BASIC DATA AT 20°C (68°F)

| Data for mixed product | |
|---|---|
| **Number of components** | Two |
| **Mass density** | 1.3 kg/l (10.8 lb/US gal) |
| **Volume solids** | 100% |
| **VOC (Supplied)** | Directive 1999/13/EC, SED: max. 107.0 g/kg<br>max. 141.0 g/l (approx. 1.2 lb/US gal) |
| **Recommended dry film thickness** | 400 - 750 µm (16.0 - 30.0 mils) |
| **Theoretical spreading rate** | 2.5 $m^2$/l for 400 µm (100 $ft^2$/US gal for 16.0 mils) |
| **Dry to touch** | 8 hours |
| **Overcoating Interval** | Minimum: 24 hours<br>Maximum: 20 days |
| **Full cure after** | 5 days |
| **Shelf life** | Base: at least 24 months when stored cool and dry<br>Hardener: at least 24 months when stored cool and dry |

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

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## RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES

**Cargo holds**

- Steel; blast cleaned to ISO-Sa2½, blasting profile 50 – 100 µm (2.0 – 4.0 mils)
- Surface must be dry and free from any contamination

**Immersion exposure**

- Steel; blast cleaned to ISO-Sa2½, blasting profile 50 – 100 µm (2.0 – 4.0 mils)
- Surface must be dry and free from any contamination
- Coated steel; hydrojetted to VIS WJ2/3 L (Blasting profile 50 – 100 µm (2.0 – 4.0 mils))

**Substrate temperature and application conditions**

- Substrate temperature during application and curing should be above 10°C (50°F)
- Substrate temperature during application and curing should be at least 3°C (5°F) above dew point

## 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)
- At lower temperature, the viscosity will be too high for spray application
- No thinner should be added

**Induction time**

None

**Pot life**

1 hour at 20°C (68°F)

Note: See ADDITIONAL DATA – Pot life

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**Airless spray**

- Heavy-duty, single-feed airless spray equipment preferably 60:1 pump ratio and suitable high-pressure hoses
- In-line heating or insulated hoses may be necessary to avoid cooling down of paint in hoses at low air temperature
- Application with 45:1 airless spray equipment is possible, provided in-line, heated high-pressure hoses are used. In case of using 45:1 airless spray equipment the paint must be heated to approximately 30°C (86°F) in order to obtain the right application viscosity
- Length of hoses should be as short as possible

**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.)

Note: In case of using 45:1 airless spray equipment, the paint must be heated to approximately 30°C (86°F) in order to obtain the right application viscosity

**Brush/roller**

- For stripe coating and spot repair only

**Recommended thinner**
No thinner should be added

**Cleaning solvent**
THINNER 90-83 (preferred) or THINNER 90-53

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

| Spreading rate and film thickness | |
|---|---|
| **DFT** | **Theoretical spreading rate** |
| 400 µm (16.0 mils) | 2.5 $m^2$/l (100 $ft^2$/US gal) |
| 500 µm (20.0 mils) | 2.0 $m^2$/l (80 $ft^2$/US gal) |
| 750 µm (30.0 mils) | 1.3 $m^2$/l (53 $ft^2$/US gal) |

Note: Maximum DFT when brushing: 200 µm (8.0 mils)

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**Measuring wet film thickness**

- A difference is often obtained between the measured apparent WFT and the real applied WFT. This is due to the thixotropy and the surface tension of the paint, which retards the release of air, trapped in the paint film for some time
- Recommendation is to apply a WFT, which is equal to the specified DFT plus 60 µm (2.4 mils)

**Maximum dry film thickness**

- Because of low initial hardness the DFT cannot be measured for some days (depending on ambient temperature) after application, due to the penetration of the measuring device into the paint film
- The DFT should be measured using a calibration foil of known thickness placed in between the coating and the measuring device
- Where required, dry film thickness (DFT) of 500 - 1000 µm (20.0 - 40.0 mils) can be specified. At DFT above 500 µm (20.0 mils), to prevent sagging, extra care needs to be taken to apply an even film thickness, for instance by multiple pass application. In complex structures or adverse application conditions, multiple coats of 400 - 500 µm (16.0 - 20.0 mils) may be required.

| Overcoating interval for DFT up to 500 µm (20.0 mils) | | | | | |
|---|---|---|---|---|---|
| **Overcoating with...** | **Interval** | **10°C (50°F)** | **20°C (68°F)** | **30°C (86°F)** | **40°C (104°F)** |
| itself | Minimum | 36 hours | 24 hours | 16 hours | 12 hours |
| | Maximum | 20 days | 20 days | 14 days | 7 days |

Note: Surface should be dry and free from any contamination

| Curing time for DFT up to 500 µm (20 mils) | | |
|---|---|---|
| **Substrate temperature** | **Dry to handle** | **Full cure** |
| 5°C (41°F) | 60 hours | 15 days |
| 10°C (50°F) | 30 hours | 7 days |
| 20°C (68°F) | 16 hours | 5 days |
| 30°C (86°F) | 10 hours | 3 days |
| 40°C (104°F) | 8 hours | 48 hours |

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

| Pot life (at application viscosity) | |
|---|---|
| **Mixed product temperature** | **Pot life** |
| 20°C (68°F) | 1 hour |
| 30°C (86°F) | 45 minutes |
| 40°C (104°F) | 25 minutes |

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

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## 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

## 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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