

# SIGMAGUARD™ CSF 585

## DESCRIPTION

Two-component, solvent-free, amine-cured epoxy coating

## PRINCIPAL CHARACTERISTICS

- Tank coating for drinking water
- Can be applied by single-feed, airless spray equipment
- Reduced explosion risk and fire hazard
- Good visibility in confined spaces due to light color
- Suitable for storage of drinking water up to 60°C (140°F) with SIGMACOVER 522 primer
- Approved for drinking water by: KIWA Holland

## COLOR AND GLOSS LEVEL

- Blue, white
- 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. 5.0 g/kg<br>max. 6.0 g/l (approx. 0.1 lb/US gal)<br>EPA Method 24: 3.4 g/ltr (0.0 lb/USgal) |
| Recommended dry film thickness | 250 - 400 µm (10.0 - 16.0 mils) depending on system   |
| Theoretical spreading rate     | 3.3 m <sup>2</sup> /l for 300 µm (134 ft <sup>2</sup> /US gal for 12.0 mils)  |
| Dry to touch                   | 5 hours   |
| Overcoating Interval           | Minimum: 24 hours<br>Maximum: 20 days   |
| Full cure after                | 12 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

# SIGMAGUARD™ CSF 585

## RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES

### Carbon steel

- Steel; blast cleaned to ISO-Sa2½, blasting profile 50 – 100 µm (2.0 – 4.0 mils)
- If a holding primer is required SIGMACOVER 280 (DFT of 50 µm (2.0 mils)) or SIGMAPRIME 200 (DFT of 75 µm (3.0 mils)) should be used

### Concrete

- Remove grease, oil and other penetrating contaminants according to ASTM D4258
- Abrade the surface per ASTM D4259 to remove all chalk and surface glaze or laitance. Achieve surface profile - ICRI CSP 3 to 5
- AMERCOAT 114 A may be used as a pit filler for certain applications. Check with PPG Technical Service for guidance on chemical resistance
- Maximum recommended moisture transmission rate is 3 lbs / 1,000 ft<sup>2</sup> / 24 hours by moisture transmission test (ASTM F1869, calcium chloride test or by ASTM D4263, plastic sheet test)
- Alternatively, ASTM D4944 (Calcium Carbide Gas method) can be used, moisture content should not exceed 4%

### 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 77.5:22:5

- At lower temperature, the viscosity will be too high for spray application
- The temperature of the mixed base and hardener should preferably be at least 20°C (68°F)
- No thinner should be added
- For recommended application instructions, see working procedure

### Induction time

Allow induction time before use

| Mixed product induction time |                |
|------------------------------|----------------|
| Mixed product temperature    | Induction time |
| 10°C (50°F)                  | 15 minutes     |

### Pot life

90 minutes at 20°C (68°F)

Note: See ADDITIONAL DATA – Pot life



# SIGMAGUARD™ CSF 585

## **Airless spray**

- Use 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
- 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**

- Brush: for stripe coating and spot repair only

## **Recommended thinner**

No thinner should be added

## **Cleaning solvent**

THINNER 90-83 (preferred) or THINNER 90-53

Note: 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**

| <b>Spreading rate and film thickness</b> |   |
|--|---|
| <b>DFT</b>                               | <b>Theoretical spreading rate</b>                   |
| 250 µm (10.0 mils)                       | 4.0 m <sup>2</sup> /l (160 ft <sup>2</sup> /US gal) |
| 300 µm (12.0 mils)                       | 3.3 m <sup>2</sup> /l (134 ft <sup>2</sup> /US gal) |
| 400 µm (16.0 mils)                       | 2.5 m <sup>2</sup> /l (100 ft <sup>2</sup> /US gal) |

Note: Maximum DFT when brushing: 100 µm (4.0 mils)

# SIGMAGUARD™ CSF 585

## 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
- A practical recommendation is to apply a WFT, which is equal to the specified DFT plus 60 µm (2.4 mils)

## Measuring dry film thickness

- Because of low initial hardness the DFT cannot be measured within some days, due to the penetration of the measuring device into the soft paint film
- The DFT should be measured using a calibration foil of known thickness placed in between the coating and the measuring device

| Overcoating interval for DFT up to 300 µm (12.0 mils) |          |             |             |             |              |
|---|----------|-------------|-------------|-------------|--------------|
| Overcoating with...                                   | Interval | 10°C (50°F) | 20°C (68°F) | 30°C (86°F) | 40°C (104°F) |
| itself  | Minimum  | 4 days      | 24 hours    | 16 hours    | 10 hours     |
|   | Maximum  | 28 days     | 20 days     | 14 days     | 14 days      |

Note: Surface should be dry and free from any contamination

| Curing time for DFT up to 300 µm (12.0 mils) |               |           |
|--|---------------|-----------|
| Substrate temperature                        | Dry to handle | Full cure |
| 10°C (50°F)                                  | 4 days        | 20 days   |
| 20°C (68°F)                                  | 24 hours      | 12 days   |
| 30°C (86°F)                                  | 16 hours      | 7 days    |
| 40°C (104°F)                                 | 10 hours      | 5 days    |

### Notes:

- For the first 24 hours the maximum RH must be 50% or lower at 10°C (50°F)
- Adequate ventilation must be maintained during application and curing (please refer to INFORMATION SHEETS 1433 and 1434)
- SIGMAGUARD CSF 585 must not be applied at temperatures below 10°C (50°F)
- For drinking water tanks, a tank wash should be carried out after full cure and before the tank goes into service
- For storage and transport of drinking water the recommended working procedure should be followed

## Washing procedures

- The recommended washing procedure must be applied after completion of the application.
- Sufficient time for full-curing and ventilation must be allowed in accordance with the recommendations as stated in the latest Product Data Sheets and working procedure.
- Always an adequate washing procedure should be followed.
- Several adequate washing procedures are available and may be used (see e.g. washing procedure described in relevant certificate).

# SIGMAGUARD™ CSF 585

## **Example 1: Adequate washing procedure**

- After full curing of the system as per the latest PDS, the tank should be filled completely with fresh tap water
- The fresh tap water should remain in the tanks at least 4 full days
- Afterwards all tank compartments such as inner hull sides, bottom and deck-heads etc. should be thoroughly washed using high pressure water
- After washing, the tanks should be thoroughly drained
- After this procedure the tanks will be fit to carry drinking water

## **Example 2: Adequate washing procedure**

- All personnel should wear watertight suits, boots and gloves properly cleaned with a sodium hypochlorite solution (1% active chlorine per liter)
- All tank sides, bottom and deckheads etc. should be brush cleaned or high-pressure spray cleaned with 1% active chlorine solution as above|note: this can also be done by butterworth washing
- All parts should be high pressure cleaned with tap water and tanks drained
- Concentrated active chlorine solution should be sprinkled on bottom; approx. 1 liter per 10 m<sup>2</sup> (1 quart per 100 ft<sup>2</sup>)
- Tanks should be filled with tap water to a depth of approx. 20 cm (8 inches) and the water should remain in the tank for at least 2 hours (max. 24 hours)
- Tanks should be thoroughly flushed out with tap water
- Depending upon local regulations it may be necessary to take water samples, after filling tank completely, to check on bacteria
- After this procedure the tanks will be fit to carry drinking water

| Pot life (at application viscosity) |           |
|-------------------------------------|-----------|
| Mixed product temperature           | Pot life  |
| 20°C (68°F)                         | 1.5 hours |
| 30°C (86°F)                         | 1 hour    |

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

## **DISCLAIMER**

- SIGMAGUARD CSF 585 is especially developed for the storage and transport of drinking water and is approved for purpose in accordance with the requirements of the relevant certificate
- In order to fulfill the requirements it is important that the coating is well ventilated during application and curing and that the coating has received full curing
- Furthermore the recommended washing procedure should be followed before exposure to drinking water, in line with our latest datasheet and working procedure
- After the washing procedure PPG Protective & Marine Coatings does not accept any responsibility or liability for any odour, taste or contamination imparted to the drinking water from the washing products retained in the coating

# SIGMAGUARD™ CSF 585

## 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
- No solvent present; however, spray mist is not harmless, a fresh air mask should be used during spraying
- 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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