

# SIGMASHIELD™ 1090

## DESCRIPTION

Two-component, ultra high-build, flint-reinforced, solvent-free, polyamine-cured, epoxy compound

## PRINCIPAL CHARACTERISTICS

- Solvent free sprayable epoxy cladding
- Seamless water impermeable layer with excellent anticorrosive properties
- Suitable for the protection of steel and concrete
- Excellent resistance against impact and wear
- Excellent adhesion under dry and wet exposure conditions
- Resistant to water and splash of mild chemicals
- Can be exposed to water within 30 minutes after application
- Texture of surface is rough
- Suitable for decks exposed to heavy impact and abrasion

## COLOR AND GLOSS LEVEL

- White (other colors available on request)
- Flat

## BASIC DATA AT 20°C (68°F)

| Data for mixed product                |  |
|---------------------------------------|--|
| <b>Number of components</b>           | Two  |
| <b>Mass density</b>                   | 2.0 kg/l (16.7 lb/US gal)  |
| <b>Volume solids</b>                  | 100%   |
| <b>VOC (Supplied)</b>                 | Directive 1999/13/EC, SED: max. 35.0 g/kg<br>max. 68.0 g/l (approx. 0.6 lb/US gal)                         |
| <b>Recommended dry film thickness</b> | 3000 - 5000 µm (120.0 - 200.0 mils)  |
| <b>Theoretical spreading rate</b>     | 0.3 m <sup>2</sup> /l for 3000 µm (13 ft <sup>2</sup> /US gal for 120.0 mils)                              |
| <b>Dry to touch</b>                   | 8 hours  |
| <b>Overcoating Interval</b>           | Minimum: 4 days<br>Maximum: 30 days  |
| <b>Full cure after</b>                | 7 days   |
| <b>Shelf life</b>                     | 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

### Substrate conditions

- Steel; blast cleaned to ISO-Sa2½, blasting profile 75 – 100 µm (3.0 – 4.0 mils)
  - Concrete; free from laitance by blast cleaning
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### Substrate temperature and application conditions

- Substrate moisture content of concrete should not exceed 4% (Carbide method)
  - 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
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## INSTRUCTIONS FOR USE

### Mixing ratio by volume: base to hardener 90.4:9.6

- Do not prepare more material than can be used within 30 minutes
  - The temperature of the mixed base and hardener when mixing the components should be approx. 20°C (68°F)
  - Use always mechanical mixing equipment
  - Add the hardener while stirring the base
  - Mix thoroughly and quickly until a homogeneous material is obtained
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### Induction time

None

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### Pot life

30 minutes at 20°C (68°F)

Note: See ADDITIONAL DATA – Pot life

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### Application

- A sprayable polymer mortar is a heavy material which has to be transported from the container with mixed material to the mortar spray gun or airless spray gun
  - Preferably 19 mm – 25 mm (0.75 – 1 inch) hoses should be used (for the airless spraying, just before the spray gun 16 mm (5/8 inch))
  - Care should be taken that hoses are of sufficiently large diameter, are as short as possible and that no obstructions are present; otherwise the binder will be pressed out of the mortar leaving dry (untransportable) material behind
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### Low pressure pump

- Equipment such as 'Swinger Pump' Fizom A112 tech spray system U.S.A.

### Nozzle orifice

6.5 – 10.0 mm (approx. 0.256 – 0.394 in) preferably with internal mix atomization

### Nozzle pressure

0.4 – 0.6 MPa (approx. 4 – 6 bar; 58 – 87 p.s.i.)

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## **Displacement feed pump**

- Equipment such as "quick spray" carousel pump and spraying equipment (Quickspray inc. Port Clinton, Ohio, U.S.A.)

## **Nozzle orifice**

4.0 – 5.0 mm (approx. 0.157 – 0.197 in)

## **Nozzle pressure**

0.4 - 0.6 MPa (approx. 4 - 6 bar; 58 - 87 p.s.i.)

## **Pressure vessel**

- Pressure vessel with bottom outlet and pressure lid
- Vessel should not contain more than 25 liters (6 US gallon)
- Before use, vessel and hoses have to be wetted with white spirit
- Hoses (diameter 25 mm = approximately 1 in) not longer than 7 meters (23 ft), preferably in two lengths of 3.5 meters (11.5 ft)
- At low temperature, hoses have to be insulated

## **Nozzle orifice**

Approx. 6.5 – 10 mm (0.256 – 0.394 in); preferably with internal mix atomization

## **Nozzle pressure**

0.4 - 0.6 MPa (approx. 4 - 6 bar; 58 - 87 p.s.i.)

## **Trowel**

- Damaged areas should be reblasted and repaired with SIGMASHIELD 1090 by means of filling knives
- Porosity, blow holes and crevices in concrete should be filled with SIGMASHIELD 1090 by hand (trowel/filling knife)
- Larger areas can be resprayed with a beaker spray unit (e.g. Putzmeister) suitable for spraying materials like coarse filled mortars

Note: Other application methods may be possible, please contact the nearest PPG Protective & Marine Coatings sales office

## **Cleaning solvent**

THINNER 90-53 or THINNER 90-83

### Notes:

- All application equipment must be cleaned immediately after use
- Insert a cellulose sponge into the hose inlet and force through with THINNER 90-53, repeat if necessary

## **ADDITIONAL DATA**

| <b>Spreading rate and film thickness</b> |  |
|--|--|
| <b>DFT</b>                               | <b>Theoretical spreading rate</b>                  |
| 3000 µm (120.0 mils)                     | 0.3 m <sup>2</sup> /l (13 ft <sup>2</sup> /US gal) |
| 5000 µm (200.0 mils)                     | 0.2 m <sup>2</sup> /l (8 ft <sup>2</sup> /US gal)  |

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| Overcoating interval for DFT up to 4000 µm (160.0 mils) |          |             |             |             |              |
|---|----------|-------------|-------------|-------------|--------------|
| Overcoating with...                                     | Interval | 10°C (50°F) | 20°C (68°F) | 30°C (86°F) | 40°C (104°F) |
| SIGMADUR 520 and SIGMADUR 550                           | Minimum  | 7 days      | 4 days      | 24 hours    | 24 hours     |
|   | Maximum  | 30 days     | 30 days     | 30 days     | 30 days      |
| solvent-free epoxies                                    | Minimum  | 24 hours    | 24 hours    | 24 hours    | 24 hours     |
|   | Maximum  | 30 days     | 30 days     | 30 days     | 30 days      |

#### Notes:

- Surface should be dry and free from any contamination
- Minimum interval with solvent-free epoxies is 1 day or immediately wet on wet

| Curing time for DFT up to 4000 µm (160.0 mils) |                     |               |           |
|--|---------------------|---------------|-----------|
| Substrate temperature                          | Dry to touch        | Dry to handle | Full cure |
| 10°C (50°F)                                    | 10 hours - 12 hours | 48 hours      | 12 days   |
| 20°C (68°F)                                    | 6 hours - 8 hours   | 24 hours      | 7 days    |
| 30°C (86°F)                                    | 4 hours - 6 hours   | 16 hours      | 4 days    |
| 40°C (104°F)                                   | 4 hours             | 12 hours      | 3 days    |

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)                         | 30 minutes |
| 30°C (86°F)                         | 15 minutes |

## SAFETY PRECAUTIONS

- 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
- For paint and recommended thinners see INFORMATION SHEETS 1430, 1431 and relevant Material Safety Data Sheets
- 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.



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## 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 |
| • SURFACE PREPARATION OF CONCRETE (FLOORS)                                     | INFORMATION SHEET | 1496 |
| • RELATIVE HUMIDITY – SUBSTRATE TEMPERATURE – AIR TEMPERATURE                  | INFORMATION SHEET | 1650 |

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