

# SIGMAZINC™ 158

## DESCRIPTION

Two-component, moisture-curing zinc (ethyl) silicate primer

## PRINCIPAL CHARACTERISTICS

- Certificate for ASTM A-490 class 'B' for slip coefficient
- Complies with the compositional requirements of SSPC-Paint 20, Level 2
- Anticorrosive primer for structural steel
- Suitable as a system primer in various paint systems based on unsaponifiable binders
- Galvanic action eliminates sub-film corrosion
- Can withstand substrate temperatures from -90°C (-130°F) up to 400°C (750°F), under normal atmospheric exposure conditions
- When suitably topcoated provides excellent corrosion protection for steel substrates up to 540°C (1000°F)
- Good low-temperature curing
- Good impact- and abrasion resistance
- Must not be exposed to alkaline (more than pH 9) or acidic (less than pH 5.5) liquids

## COLOR AND GLOSS LEVEL

- Gray, greenish gray
- Flat

## BASIC DATA AT 20°C (68°F)

Data for mixed product	
Number of components	Two
Mass density	2.3 kg/l (19.2 lb/US gal)
Volume solids	65 ± 2%
VOC (Supplied)	Directive 1999/13/EC, SED: max. 219.0 g/kg max. 507.0 g/l (approx. 4.2 lb/US gal)
Recommended dry film thickness	75 - 100 µm (3.0 - 4.0 mils) depending on system
Theoretical spreading rate	8.7 m <sup>2</sup> /l for 75 µm (348 ft <sup>2</sup> /US gal for 3.0 mils)
Dry to touch	30 minutes
Overcoating Interval	Minimum: 12 hours Maximum: Unlimited
Full cure after	12 hours
Shelf life	Binder: at least 9 months when stored cool and dry Pigment: at least 24 months when stored pigment moisture free

### Notes:

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



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## 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, welds, rusty and damaged areas blast cleaned to ISO-Sa2½

## Atmospheric exposure conditions

- Steel; blast cleaned to ISO-Sa2½, blasting profile 40 – 70 µm (1.6 – 2.8 mils)
- Steel with approved zinc silicate shop primer; pretreated to to SPSS-Pt3
- Weathered galvanized steel; blast cleaned to remove rust, to roughen the surface and to remove any zinc salts, which might be present

## Substrate temperature and application conditions

- Substrate temperature during application and curing down to -5°C (23°F) is acceptable; provided the substrate is free from ice and dry
- Substrate temperature during application up to 50°C (122°F) is acceptable
- Substrate temperature during application and curing should be at least 3°C (5°F) above dew point
- Relative humidity during curing should be above 50%

## INSTRUCTIONS FOR USE

### Mixing ratio by volume: binder to zinc powder 81:19

- Many of PPG's zinc silicates are supplied as two-pack materials consisting of a container with pigmented binder and a drum containing a bag of zinc powder.
- To ensure proper mixing of both components, the instructions given below must be followed
- To avoid lumps in the paint do not add the binder to the zinc powder
- [1] Take the bag with zinc powder out of the drum
- [2] Shake the binder in the jerrycan a few times to reach a certain degree of homogenization
- [3] Pour about 2/3 of the binder into the empty drum
- [4] With the jerrycan now reduced in weight and containing more free space, shake it vigorously to obtain a homogeneous mix with no deposits left on the bottom, and add this to the drum
- [5] Add the zinc powder gradually to the pigmented binder in the drum and, at the same time, continuously stir the mixture by using a mechanical mixer (keep the speed low)
- [6] Stir the zinc dust powder thoroughly through the binder (high speed) and keep stirring until a homogeneous mixture is obtained
- [7] Strain mixture through a 30 – 60 mesh screen
- [8] Agitate continuously during application (low speed). The use of a dedicated pump with a constant agitation for a zinc silicate coating is recommended

Note: At application temperature above 30°C (86°F) addition of max 10% by volume of THINNER 90-53 may be necessary

## Induction time

None



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**Pot life**

12 hours at 20°C (68°F)

Note: See ADDITIONAL DATA – Pot life

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**Air spray****Recommended thinner**

THINNER 90-53

**Volume of thinner**

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

**Nozzle orifice**

2.0 mm (approx. 0.079 in)

**Nozzle pressure**

0.3 MPa (approx. 3 Bar; 44 p.s.i.)

Note: A dedicated pump for a zinc silicate coating with constant agitation must be used

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**Airless spray****Recommended thinner**

THINNER 90-53

**Volume of thinner**

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

**Nozzle orifice**

Approx. 0.48 – 0.64 mm (0.019 – 0.025 in)

**Nozzle pressure**

9.0 - 12.0 MPa (approx. 90 - 120 bar; 1306 - 1741 p.s.i.)

Note: A dedicated pump for a zinc silicate coating with constant agitation must be used

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# SIGMAZINC™ 158

**Brush/roller**

- Only for touch-up and spot repair
- Roller application is not recommended

**Recommended thinner**

THINNER 90-53

**Volume of thinner**

5 – 15%

Note: Apply a visible wet coat with a max. dft of 25 µm (1.0 mils)|same for subsequent coats in order to obtain the required dft

**Cleaning solvent**

THINNER 90-53

**Upgrading**

- This is only valid for spray application
- If the DFT is below specification and an extra coat of SIGMAZINC 158 has to be applied, SIGMAZINC 158 should be thinned down with 25 – 50% THINNER 90-53, in order to obtain a visible wet coat that remains wet for some time

**ADDITIONAL DATA**

Spreading rate and film thickness	
DFT	Theoretical spreading rate
75 µm (3.0 mils)	8.7 m <sup>2</sup> /l (348 ft <sup>2</sup> /US gal)
100 µm (4.0 mils)	6.5 m <sup>2</sup> /l (261 ft <sup>2</sup> /US gal)

**Notes:**

- Maximum DFT when brushing: 35 µm (1.4 mils)
- Above 150 µm (6.0 mils) mudcracking can occur
- Average DFT 75 µm (3.0 mils) with a minimum of 60 µm (2.4 mils) on smooth non-pitted blast cleaned steel
- Average DFT 100 µm (4.0 mils) with a minimum of 75 µm (3.0 mils) on rough or pitted, blast cleaned steel

## SIGMAZINC™ 158

## Overcoating interval for DFT up to 100 µm (4.0 mils)

Overcoating with...	Interval	-5°C (23°F)	0°C (32°F)	10°C (50°F)	20°C (68°F)	30°C (86°F)	40°C (104°F)
itself	Minimum	24 hours	24 hours	18 hours	12 hours	6 hours	4 hours
	Maximum	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited

## Notes:

- A relative humidity below 50% requires a much longer overcoating time
- If part of a coating system and in order to avoid possible popping effects (pinholes) SIGMAZINC 158 should be sealed with approved coatings
- SIGMAZINC 158 is a moisture curing zinc silicate, this means that it cures after sufficient exposure to moisture from the atmosphere during and after application; it is recommended that relative humidity and temperature are measured during the curing time
- Before entering service or overcoating, a sufficient degree of cure should be obtained
- When curing conditions are unfavorable or when reduced overcoat times are desired, curing can be accelerated 4 hours after application by: [1] Wetting or soaking with water, keeping the surface wet for the next 2 hours, followed by drying; [2] Wetting or soaking with a 0.5% ammonia solution, followed by drying
- Wetting or soaking with water, keeping the surface wet for the next 2 hours, followed by drying
- Wetting or soaking with a 0.5% ammonia solution, followed by drying
- Before overcoating with topcoats, SIGMAZINC 158 should always be visibly dry and checked on sufficient curing
- For measuring of the curing, the MEK rub test according to ASTM 4752 is a suitable method: after 50 double rubs with a cloth soaked in MEK (or alternatively THINNER 90-53) no dissolving of the coating should be observed

## Curing time for DFT up to 100 µm (4.0 mils)

Substrate temperature	Dry to handle	Full cure
-5°C (23°F)	2 hours	24 hours
0°C (32°F)	2 hours	24 hours
10°C (50°F)	1 hour	18 hours
20°C (68°F)	30 minutes	12 hours
30°C (86°F)	30 minutes	6 hours
40°C (104°F)	30 seconds	4 hours

## Notes:

- SIGMAZINC 158 is a moisture curing zinc silicate, this means that it only cures after sufficient take up of water, (from the atmosphere) during and after application
- It is recommended that relative humidity and temperature are measured during the curing time
- 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
0°C (32°F)	24 hours
10°C (50°F)	16 hours
20°C (68°F)	12 hours
30°C (86°F)	6 hours



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## SAFETY PRECAUTIONS

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

## 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

## WARRANTY

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