

SIGMAZINC™ 160

DESCRIPTION

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

PRINCIPAL CHARACTERISTICS

- Anticorrosive primer for structural steel
- Two component product consisting of clear binder and zinc paste
- 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 impact and abrasion resistance
- Good low-temperature curing
- Complies with SSPC-Paint 20

COLOR AND GLOSS LEVEL

- 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. 218.0 g/kg max. 503.0 g/l (approx. 4.2 lb/US gal)
Recommended dry film thickness	60 - 100 µm (2.4 - 4.0 mils) depending on system
Theoretical spreading rate	8.7 m ² /l for 75 µm (348 ft ² /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	Base: at least 6 months when stored cool and dry Hardener: at least 6 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

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
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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
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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%
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INSTRUCTIONS FOR USE

Mixing ratio by volume: binder to paste 35.5:64.5

- Use a mechanical mixer
- Stir the paste thoroughly before adding the binder
- Add the binder gradually to the paste
- Stir thoroughly until homogeneous
- Do not mix in reverse order
- Strain the mixture through a 30–60 mesh screen
- 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

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.)

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

15.0 MPa (approx. 150 bar; 2176 p.s.i.)

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

Brush/roller

- Only for touch-up and spot repair

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

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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 160 has to be applied, SIGMAZINC 160 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
60 µm (2.4 mils)	10.8 m ² /l (434 ft ² /US gal)
75 µm (3.0 mils)	8.7 m ² /l (348 ft ² /US gal)
100 µm (4.0 mils)	6.5 m ² /l (261 ft ² /US gal)
125 µm (5.0 mils)	5.2 m ² /l (209 ft ² /US gal)

Note: Highly pigmented zinc silicate primers produce dry films with void spaces in between the particles

Overcoating interval for DFT up to 75 µm (3.0 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:

- Maximum interval is only unlimited when the surface is free from any contamination
- A relative humidity below 50% requires a much longer overcoating time
- Before entering service or overcoating, a sufficient degree of cure should be obtained
- Before overcoating with topcoats, SIGMAZINC 160 should always be visibly dry and checked on sufficient curing
- If part of a coating system and in order to avoid possible popping effects (pinholes) SIGMAZINC 160 should be sealed with approved coatings
- 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
- 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

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Curing time for DFT up to 75 µm (3.0 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 minutes	4 hours

Notes:

- SIGMAZINC 160 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
- Relative humidity during curing recommended to be above 50%
- 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

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.



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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
• RELATIVE HUMIDITY – SUBSTRATE TEMPERATURE – AIR TEMPERATURE	INFORMATION SHEET	1650

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