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 500°C (930°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 2010/75/EU, SED: max. 219.0 g/kg max. 507.0 g/l (approx. 4.2 lb/US gal) China GB 30981-2020 (tested) 522.0 g/l (approx. 4.4 lb/gal)
Recommended dry film thickness	75 - 100 µm (3.0 - 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	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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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

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

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

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

Recommended thinner
THINNER 90-53

Volume of thinner
5 – 10%

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^2/l (348 ft^2/US gal)
100 µm (4.0 mils)	6.5 m^2/l (261 ft^2/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

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Overcoating interval for DFT up to 100 µm (4.0 mils) and 50% relative humidity							
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)**
recommended topcoats	Minimum Maximum	24 hours Unlimited	24 hours Unlimited	18 hours Unlimited	12 hours Unlimited	6 hours Unlimited	4 hours Unlimited

Notes:

- For recoating with itself to take required dft, recommend to apply within 2 days before full cure. No minimum recoating interval limitation for itself.
- To confirm cure to topcoat, conduct a MEK rub test per ASTM D4752. A rating of 4 or higher is sufficient for topcoating
- 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/recoating time will be shortened by the increase of humidity, please contact regional technical service team for details
- A mist coat / full coating application technique is required when topcoating to prevent application bubbling. Ensure dry spray is removed from the surface
- 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
- 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
- Maximum interval is only unlimited when the surface is free from any contamination

Curing time for DFT up to 100 µm (4.0 mils) and 50% relative humidity		
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 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
- Relative humidity during curing recommended to be above 50%
- Adequate ventilation must be maintained during application and curing

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

- See Safety Data Sheet and product label for complete safety and precaution requirements
- 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

• EXPLANATION TO PRODUCT DATA SHEETS	INFORMATION SHEET	1411

WARRANTY

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