

SIGMAGUARD 750**(SIGMA SILGUARD MC)**

6 pages

September 2005
Revision of January 2003**DESCRIPTION**

two component moisture curing zinc rich (ethyl) silicate coating

PRINCIPAL CHARACTERISTICS

- tankcoating with excellent solvent and chemical resistance
- to be used as tankcoating or as a system primer in various paint systems based on unsaponifiable binders
- can withstand substrate temperatures from -90°C up to +400°C, under normal atmospheric exposure conditions
- high zinc content resulting in excellent corrosion protection
- good impact and abrasion resistance
- certificate for ASTM A-490 class 'B' for slip co-efficient
- Recognized corrosion control coating (Lloyd's register), see sheet 1886
- must not be used for immersion in alkaline (more than pH 9) or acidic (less than pH 5.5) liquids

COLOURS AND GLOSS

greenish grey - flat

BASIC DATA AT 20°C(1 g/cm³ = 8.25 lb/US gal; 1 m²/l = 40.7 ft²/US gal)
(data for mixed product)

Mass density

2.7 g/cm³

Volume solids

65 ± 2%

VOC (supplied)

max. 167 g/kg (Directive 1999/13/EC, SED)
max. 452 g/l (approx. 3.8 lb/gal)Recommended dry film
thicknessaverage dft 75 µm to 100 µm with a minimum of 75 µm on smooth non-pitted blast cleaned steel
average dft 100 µm with a minimum of 75 µm on rough or light pitted, blast cleaned steel
heavy pitted steel substrate is not acceptable

Theoretical spreading rate

8.7 m²/l for 75 µm, 6.5 m²/l for 100 µm *

Touch dry after

30 min. at 20°C

Overcoating interval

min. 12 hours *
max. unlimited, zinc salts must be removed

Curing time

12 hours *

(data for components)

Shelf life (cool and dry place)

binder: at least 9 months
pigment: at least 24 months (store pigment moisture free)

Flash point

binder 14°C, pigment above 65°C

* see additional data

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**RECOMMENDED
SUBSTRATE CONDITIONS
AND TEMPERATURES**

- steel; blast cleaned in-situ to at least ISO-Sa2½, completely free from rust, scale, shop primer and contaminations, blasting profile (R_z) 40-70 µm
- galvanised steel; sweep blasted to roughen the surface and to remove any zinc salts which might be present
- a heavy pitted steel substrate is not acceptable
- substrate temperatures ranging from -5°C up to +40°C during application are acceptable
- substrate temperature must be at least 3°C above dew point during application and curing
- relative humidity during curing should be above 50%

SYSTEM SPECIFICATION

marine

system sheet 3323

INSTRUCTIONS FOR USE

mixing ratio by volume: base to hardener 74 : 26

Many of Sigma's zinc silicates are supplied as 2 pack materials consisting of a jerrycan 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 homogenisation.
- 3) Pour about 2/3 of the binder in 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 till, 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 addition of max 10% by volume of Sigma Thinner 90-53 may be necessary

Induction time

none

Pot life

12 hours at 20°C *

* see additional data

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AIRLESS SPRAY

Recommended thinner Sigma 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 - 12 MPa (= approx. 90 - 120 bar; 1280 - 1700 p.s.i.)
a dedicated pump for a zinc silicate coating with constant agitation must be used

AIR SPRAY

Recommended thinner Sigma thinner 90-53
Volume of thinner 0 - 10%, depending on required thickness and application conditions
Nozzle orifice 2 mm
Nozzle pressure 0.3 MPa (= approx. 3 bar; 43 p.s.i.)
a dedicated pump for a zinc silicate coating with constant agitation must be used

BRUSH

Recommended thinner Sigma thinner 90-53
Volume of thinner 5 - 15%
only for touch up and spot repair
apply a visible wet coat with a max. dft of 25 µm
same for subsequent coats in order to obtain the required dft

CLEANING SOLVENT

Sigma thinner 90-53

UPGRADING DFT

when for some reason the dft is below specification and an extra coat of SigmaGuard 750 has to be applied, SigmaGuard 750 should be thinned down with 25 - 50 % Sigma thinner 90-53, in order to obtain a visible wet coat that remains wet for some time
this is only valid for spray application

SAFETY PRECAUTIONS

for paint and recommended thinners see safety sheets 1430, 1431 and relevant material safety data sheets

this is a solvent based paint and care should be taken to avoid inhalation of spray mist or vapour as well as contact between the wet paint and exposed skin or eyes

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ADDITIONAL DATA

very highly pigmented zinc silicate primers produce dry films with void spaces in between the particles

Film thickness and spreading rate

theoretical spreading rate m ² /l	8.7	6.5	5.2
dft in µm	75	100	125

above 150 µm dft mudcracking can occur
max. dft when brushing:

35 µm

Overcoating table for RH of 50% and higher

substrate temperature	-5°C	0°C	10°C	20°C	30°C	40°C
minimum interval	24 hours	24 hours	18 hours	12 hours	6 hours	4 hours
maximum interval	unlimited, provided the surface is dry and cleaned from contamination and zinc salts					

- a RH below 50% requires a much longer overcoating time
- if part of a coating system and in order to avoid possible popping effects (pinholes) SigmaGuard 750 should be sealed with approved coatings
- SigmaGuard 750 is a moisture curing zinc silicate, this means that it only cures after sufficient take up of water (from the atmosphere or immersion) 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 unfavourable or when reduced overcoat times are desired, curing can be accelerated 4 hours after application by:
 - 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, SigmaGuard 750 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 Sigma thinner 90-53) no dissolving of the coating should be observed

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Curing table for 50% RH and higher

substrate temperature	curing time for non immersion service	curing time for full resistance according to resistance list
0°C	24 hours	4 days
10°C	18 hours	4 days
20°C	12 hours	2 days
30°C	6 hours	2 days
40°C	4 hours	2 days

- SigmaGuard 750 is a moisture curing zinc silicate, this means that it only cures after sufficient take up of water (from the atmosphere or immersion) 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 sheet 1433 and 1434)

Pot life (at application viscosity)

0°C	24 hours
10°C	16 hours
20°C	12 hours
30°C	6 hours

Worldwide availability

Whilst it is always the aim of Sigma Coatings to supply the same product on a worldwide basis, 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	see information sheet 1411
Safety indications	see information sheet 1430
Safety in confined spaces and health safety	
Explosion hazard - toxic hazard	see information sheet 1431
Safe working in confined spaces	see information sheet 1433
Directives for ventilation practice	see information sheet 1434
Cleaning of steel and removal of rust	see information sheet 1490
Specification for mineral abrasives	see information sheet 1491
Relative humidity - substrate temperature - air temperature	see information sheet 1650

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The English text of this document shall prevail over any translation thereof.

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