

Introduction

Zinc silicate products deviate from other coatings commonly used in the protective and marine coatings industry:

- Inorganic
- Moisture cure
- Liquid binder with a powder or paste second component

They therefore need a slightly different approach or some more attention to detail compared to, for instance, other two component products like epoxy or polyurethane based materials. This document gives guidance on:

- Storage
- Thinning
- Application conditions
- Maximum dry film thickness
- Curing conditions
- Recoating

Usage instructions

Storage

Cans with the binder part should be kept out of the sun and preferably the temperature of the binder is kept below 30°C. If settlement is observed due to longer storage, this can be reduced by turning the containers upside down for some time turning them every 2 weeks or so.

Thinning

The amount of thinning necessary will depend upon prevailing conditions such as temperature, humidity, wind/ventilation, method of spraying, spray equipment, etc. Too little thinning will typically lead to dry-spray and too much thinning to sagging and settling of zinc particles in the can or in the spray hoses. In case of a high level of thinning and/or long stops in application, the mixed paint must be re-circulated to avoid settlement of zinc particles in the spray hoses.

When applying Transozinc Silicate 1.52 in warmer climates (> 35 °C) it may be necessary to use Thinner 6.08 instead of Thinner 6.07 to help control dry spray.

Application conditions

The optimal conditions for spraying are between 15-25 °C and 75% relative humidity (RH).

The surface temperature during application should be 0°C or above as well as be above the dew point. As a rule of thumb a steel temperature 3°C above the dew point can be considered safe.

The maximum substrate temperature is approx. 50°C. When applying at steel temperatures higher than 30 °C, care should be taken to avoid dry-spray. This can be done by using more Thinner 6.07 (up to 10%) or by using Thinner 6.08 which is slower evaporating thinner than Thinner 6.07.

Please note that sagging resistance may be reduced and therefore reduction of wet film thickness may be necessary in combination with building up the required thickness in multiple passes allowing for some flash-off.

In confined spaces, supply an adequate amount of fresh air during application and drying to assist solvent evaporation. Ventilation for this purpose is recommended to be a minimum corresponding to a few air shifts per hour along all surfaces. However, avoid ventilators blowing directly onto the freshly applied paint.



Maximum dry film thickness

Excessive application of the paint will lead to mud cracking. It is advised to use the recommended dry film thickness of 75 micron. Above thicknesses of 100 micron, mud cracking can occur.

Curing conditions

Transozinc Silicate 1.52 requires humidity for full curing. At a RH of 50% or higher, typical minimum recoating interval above 0° C is 24 hours, at 20 ° 12 hours and at 40 °C approx. 4 hours.

Relative Humidity should be monitored during the curing process. At lower humidity, the curing may be accelerated by gently spraying with fresh water or a 0,5% ammonia solution. This should only be done after an initial curing of 6 hours.

Curing can be checked by using the MEK rub test according to ASTM 4752. After 50 double rubs with a cloth soaked in MEK, the zinc silicate coating should not dissolve.

In case MEK is not available, thinner 6.07 or thinner 6.08 may be used as an alternative.

Recoating

The zinc silicate should be fully cured prior to recoating (generally with an epoxy coating). Un-weathered zinc silicate films are porous and the porosity may vary according to the weather condition during application and the application technique. When recoating, the air in the pores will escape through the new coat of paint and may cause blisters or pinholes ("popping") in the freshly applied film. To avoid this, a mist coat/full coat technique is recommended: first apply a thin coat (of extra thinned specified epoxy second coat) to fill the pores in the zinc silicate film and a few minutes later apply to full specified film thickness.

In case where thinning of the next coat is not desired or in difficult cases, use Transpoxy Sealer 1.99 or Transpoxy Primer 1.16 as a tie-coat.

