

ZINC SILICATE (INORGANIC)

▶ Product code No.	477-040
▶ Product Description	Two-component (part A + part B) zinc-ethyl silicate-type primer. Forms a continuous layer of metallic zinc that provides cathodic protection to metal (as in hot galvanization).
▶ Special features	Superior anti-corrosive primer for protection of steel. Resistant to dry heat at temperatures up to 450°C.
▶ Suggested uses	In clean or mildly corrosive environments, may be applied in a single 75 microns thick coat. In acidic or alkaline environments, must be coated with a top-coat such as chlorinated rubber, vinyl, epoxy or Polyurethane.

Technical data

▶ Color	Bluish-Grey.
▶ Gloss at 60°C	Matt.
▶ Solid content by volume	69%
▶ Recommended dry film thickness	75 microns.
▶ Calculated spreading rate* (sq. m/liter)	9.2
▶ Recommended thinner	280
▶ Touch dry**	5 minutes.
▶ Hard coat**	6 months.
▶ Dry to recoat	24 hours

Two pack product

Mixing ratio by weight	A:B = 266:100
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V.O.C. MIXED 298 g/liter

Storage

▶ **Shelf life**** 6 months.

Surface preparation and specification

Blast to Sa-2.5 (per Swedish Standard) and profile of 25-50 microns. Apply one coat only.

Dry film thickness of this product shall not exceed 120 microns, to avoid possible formation of "mud cracking".

▶ **Paint application**

Method	Pressure (atm.)	Nozzle Orifice	Thinner	Thinning Volume (%)
Brush/roller			280	5%
Airless spray	5-6	0.021"	280	5%

▶ **Cleaning thinner**

280

Application remarks

Stir well before application and while painting.

This paint is supplied in two parts. Part A is the binder and part B is zinc powder. Start by mixing part A in a mechanical mixer, slowly add zinc powder and mix thoroughly until a homogeneous mixture, free of lumps, is obtained. Filter through a 30-mesh sieve before application.

When applying through airless spray, ascertain that the appliance suits this paint type, i.e., capable of resisting abrasion and equipped with a pressure pot and a stirrer. Do not apply when humidity is below 50%.

Top coating

The dried film of Zinc Silicate is very porous, containing a large amount of air in the pores. If it is top-coated, air may be entrapped or thinner may be released into the film, which may lead to blisters formation (boiling). To avoid this, spray a diluted coat of the desired paint, diluted up to 30%, in the form of thin mist, to ensure maximum penetration into the pores of the Zinc Silicate film and expulsion of the entrapped air. Then a full top-coat, in the desired thickness may be applied.

Recoating aged zinc silicate

Flush with pressurized fresh water to remove deposited salts. Wait for complete drying and apply the recommended paint system.

Caution

Any work that includes application and use of this product shall be performed according to the applicable Safety, Health and Environmental regulations. Read the safety precautions and the warnings specified in the Safety Data Sheet, available at Tambour Safety Department and indicated on the product's label.

Keep away from fire and sparks. Inedible. Provide adequate ventilation of the work space. Use appropriate protective means, as indicated in the Safety Data Sheet.

Do not inhale fumes when spraying this product.

Warning

Never mix this material with others when not specifically recommended by us.

General comments

Data presented here is based on our best knowledge and experience. We reserve the right to update and/or alter it without prior notice. Achievement of the best desired results is subject to proper application in strict conformance to our instructions and safety measures. Before application, the user should verify that the product is indeed designed for the intended usage and that the surfaces to be painted are properly prepared, and are suitable for the product's application.

* Practical spreading rate can vary, depending on the surface, the application mode, the painter's skill and weather conditions at the site. Assume approximately 75% of the calculated spreading rate.

** At 25°C and 65% relative humidity.

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INSTRUCTIONS FOR PROPER USE

▶ Product Description	Two-component primer, designed for anti-corrosive priming of steel. The protection is provided by a continuous metallic film, which upon contact with ferrous substrate provides cathodic protection to the metal. The continuity of the zinc film is achieved through the extremely high content of metallic zinc particles and consequent low content of binder, thus creating the essential contact between the zinc particles.
▶ Special properties and application	<p>a. In clean or mildly corrosive environments, Zinc Silicate can serve as a single-coat protective primer, provided that the film thickness is 60 microns at least. Zinc metal is quickly attacked by highly acidic or alkaline environments or by immersion in sea-water. If the paint is intended for use in such environmental conditions, it is essential to top-coat it with a suitable chemical resisting top-coat (such as chlorinated rubber, vinyl, or epoxy).</p> <p>b. Heat resistance: The binder of this primer is inorganic silicate. In contrast to organic binders in normal paints, this composition provides dry heat resistance up to 400-450°C.</p>
Drying mechanism	The ethyl silicate based binder reacts after application with atmospheric moisture. This reaction increases the specific weight of the polymer while releasing organic fractions. After a few hours, depending on the relative humidity, an inorganic polymeric silica matrix is formed.
Surface preparation	Since this cathodic protection is based on an electro-chemical mechanism, it is essential to provide direct intimate contact between the coat and the metal. Even in the presence of a sound primer, other than Zinc Silicate (such as shop primer, it is essential to remove it completely. Prepare surface by blasting to near white metal (Sa-2.5 per Swedish Standard) for normal exterior resistance and to white metal (Sa 3) where the object is intended for immersion resistance. The desirable metal profile after sandblasting is 25-50 microns. Remove dust and other contaminants before application. Apply Zinc Silicate as soon as possible after cleaning to avoid rust onset and contamination. Never leave cleaned surface exposed overnight.
Paint preparation	To achieve high zinc particles content, work with a very low viscosity binder. Yet, as specific weight of zinc is very high, it tends to settle rapidly in thin medium. Therefore, the product is supplied in two parts. Ascertain that the packaging is tightly closed to prevent moisture penetration. Part A is the binder and part B is the zinc powder (discard the small bag of desiccant inside the zinc powder before mixing part A with part B).

Mixing procedure	Start stirring part A in a mechanical mixer. Add the zinc powder (part B) slowly into part A, while mixing. Rapid addition may cause lumps formation due to insufficient wetting of the pigment. Continue stirring until a completely homogeneous and smooth mixture is obtained. Strain through a 30-60 mesh sieve before application, to remove any lumps and granules. Thin, as needed, using only thinner 280 (about 10-30%, according to volume) and no other thinner.
Painting equipment	You can apply this paint using airless sprayers, designed to spray this product. Due to high wear rate, use sprayers with high wear resistance and a pressure pot with a mixer. Small areas may be painted by brush.
Application	This paint is very sensitive to application conditions and any deviation may cause surface defects described below.
Film thickness	Recommended dry film thickness is 75 microns in one coat. Do not apply dry thickness coats exceeding 120 microns to avoid spontaneous "mud cracking". Control applied wet thickness constantly, because it is very difficult to correct any deviation in film thickness, due to poor adhesion of the coats after the primer dries. Where dry thickness is lower than the recommended thickness, compensate during application of the following coats (chlorinated rubber, vinyl or epoxy). In case of mud cracking, remove loose coats and repair by applying a Zinc Rich Epoxy coat. It is best to perform this repair using a brush or by spraying a thinned coat, while avoiding unnecessary overlaps. In case of Over Spray, the painted surface is very rough and covered by a film; the paint is uneven and lacks mechanical properties. Remove the powdery spray with emery cloth and smooth the surface evenly. We then recommend rinsing with water.
Over spray	May occur due to several causes: <ul style="list-style-type: none"> a. Insufficient thinning. b. Excessive distance between the spray nozzles to the surface. c. Application during hot and dry weather or when the metal plate is very hot.
Drying conditions	As stated above, the drying mechanism is based on chemical reaction with water vapors in the air. Therefore, it is not recommended to apply this paint in relative humidity below 50% and at environmental temperatures over 40°C. When application must be performed at relative humidity below 50%, spray water mist on the surface after the paint is dry to touch (about 4 hours), to speed the paint's hardening. This paint requires 7 days of drying to develop maximum resistance to solvents. Do not apply when rain, heavy dew or frost are expected during or within two hours after application. Under correct conditions, the paint dries to touch after a few minutes and to treatment after 24 hours. Drying time for top-coating is 24 hours min.