

ZFES[®]-MO

ethylsilicate zinc-rich heat-resistant primer
(TS 20.30.12-039-12288779-2017)



Description

Double-packed heat-resistant ethyl silicate zinc-rich primer consisting of component A (zinc powder) and component B (binding agent).

Complies with ISO 12944.5 (GOST 34667.5) for the content of zinc powder in the coating - more than 80%.

Recommended use

Anti-corrosion protection of steel surfaces, pipelines and equipment (including furnaces, boilers) operated at a constant temperature of minus 60 up to plus 600 °C, in atmospheric conditions of macroclimatic regions with temperate, moderately cold and cold climates, all types of atmosphere and placement categories according to GOST 15150.

Used for:

- protection of heated structures in the atmosphere as:

- self-coating with heat resistance up to plus 400 °C (short-term up to plus 450 °C);
- primer layer in a system with primer-enamel VINICOR-term with the heat resistance of the system up to 540 °C (short-term 600 °C)/

- protection of heated structures under thermal insulation as:

- primer layer in a system with primer-enamel VINICOR-term with the heat resistance of the system up to 450 °C (short-term 540 °C).

Certificates, approvals

Certificate of state registration No. RU.66.01.40.008.E.000059.10.24 dated 10.24.2024.

Approved by the IPHIS Frishberg testing center.

Technical data

	Coating
Color of coating	Homogeneous, matte, smooth gray, the shade is not standardized
Heat resistance in the open air	400 °C (short-term 450 °C)
Thickness of one layer, μm	50-75
Theoretical spreading rate of one-layer coating, g/m ²	190-285
Adhesion	1 grade, not more than
Density, g/cm ³	1.20-2.70
Solids, %	
- by volume	54±2
- by mass	82±2
Pot life after mixing at temperature (20±2)°C, h	8, not less than
Drying time to 3 degree (GOST 19007-73) at temperature (20±2)°C and relative air humidity (55±5)%, min	20, not more than

Surface preparation

- to degrease metal surface to 1 grade according to GOST 9.402;
 - to do abrasive blast cleaning to 2 grade according to GOST 9.402 (Sa 2 ½ or Sa 3 according to ISO 8501-1). Surface profile is acute-angled (grit), surface roughening 25-60 μm (thin according to ISO 8503-1, G comparator, segment 1-2);
 - to remove abrasive and dust.
- Preparing the ZFES-MO coating before applying VINICOR-term:
- to degrease if necessary with detergent MS-01 (TS 2381-095-12288779) or other aqueous solutions of detergents (pH of solutions should be in the range of 6 to 8), slight degreasing (without grinding) using white spirit is allowed;
 - if there are defects, carry out local blast cleaning to degree P Sa 2 ½ (ISO 8501-2) followed by restoration of the coating. Allowed in hard-to-reach places local cleaning with hand or power tools to degree P St 2 (ISO 8501-2);
 - to remove dust.

Application

1. Remove the bag of zinc powder (component A) from the bucket;
2. Pour about 2/3 of the binder into an empty bucket;
3. Gradually add zinc powder and the remaining binder into the bucket while constantly stirring the mixture with a mechanical mixer, maintaining a low mixing speed.
To avoid the formation of lumps when mixing the components, do not add a binder to the zinc powder;
4. Mix the zinc powder thoroughly into the binder (at high speed) and stir until a homogeneous mixture is obtained;
5. Filter the mixture through a 30-60 mesh (250-500 microns) sieve.
During use, constantly stir the material at low speed.
After mixing, the material can be used within 8 hours.

Primer is recommended to be applied at temperatures from +5 °C to +40 °C and relative air humidity from 30 % to 80 % (aimed 50 % to 80 %). The temperature of the surface to be painted must be above the dew point by at least 3 °C, but not above plus 40 °C. When painting, the temperature of the material should not be below plus 15 °C.

Primer should be applied in one layer by airless, conventional (air) spray, brush/roller.

Recommended application parameters:

Airless spray

Recommended thinner	SOLV-ES
Quantity	up to 5 % by mass
Nozzle diameter	0.013" - 0.017" (0.33 - 0.43 mm)
Pressure	9 - 12 MPa (90 - 120 bar)

Conventional (air) spray

Recommended thinner	SOLV-ES
Quantity	up to 10 % by mass
Nozzle diameter	1.8 - 2.2 mm
Pressure	0.3 - 0.4 MPa (3 - 4 bar)

Brush

Recommended thinner	SOLV-ES
Quantity	up to 5% by mass

Roller application is not recommended.

The thickness of one dry layer when applied with a brush is 25 µm.

Equipment cleaning SOLV-ES, thinners R-4 and 646

The recommended dry coating thickness is 75 µm (working thickness is 50-75 µm). Exceeding the thickness of the coating can lead to cracking and the need to remove defective areas by abrasive blasting.

ZFES-MO is a moisture-curing zinc silicate, i.e. curing occurs due to ambient air moisture. As humidity increases, curing time decreases.

The approximate drying time at a relative humidity of more than 50% is given in the table:

Drying degree	Drying time at ambient temperature				
	0 °C	+10 °C	+20 °C	+30 °C	+40 °C
Min before application next layer of ZFES-MO	40 min	30 min	20 min	10 min	5 min
Min before transportation or overlapping by VINICOR-term	48 h	40 h	24 h	12 h	4 h

The minimum time for overcoating ZFES-MO by VINICOR-term primer-enamel depends on the temperature and moisture content of the air and is at least 24 hours with preliminary control curing of the primer layer with the IEC test according to ASTM D4752 (after 50 double abrasions with a cloth moistened with methyl ethyl ketone (or SOLV-ES solvent), no traces of coating dissolution should be observed on the surface).

When applying VINICOR-term, an impregnating layer is required, followed by a full layer of VINICOR-term.

The maximum overlap time is not limited.

At relative air humidity below 30%, to reduce drying time (by 2-4 times), it is recommended to use a drying accelerator for ethyl silicate paints and varnishes (TU 20.30.12-160-12288779).

Storage and handling

Component A of ZFES-MO is supplied in special bags with a valve, or in plastic bags packed in metal buckets. Component B is supplied in plastic cans.

Storage and transportation conditions – according to GOST 9980.5 (at air temperature from minus 40 °C to plus 40 °C). The container with primer shall be protected from atmospheric condensation and direct sunlight.

The shelf life of Component A in hermetically enclosed original container is 9 months, Component B – 6 months starting with the manufacture date.

Precautions

When working with the primer, one shall observe the existing sectoral standard norms and requirements and safety measures as specified on the package label.

Personal protective equipment (goggles, face masks and respirators) shall be used, inhalation of thinners and contact of the composition or its components with skin, ocular mucosa, respiratory channels shall be avoided; use inside the premises is allowed only in case sufficient ventilation is provided.

The primer is classified as a fire-hazardous material.

The information is of general character, without consideration to the object specific nature. Use of materials for other purposes not specified here or in case other influencing factors are present shall be approved by the VMP Holding CJSC in writing. In case of absence of such approval the manufacturer is not held liable for the improper use of the material and the buyer falls from the right to present claims connected with the coating quality.



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