



MAXURETHANE® CEM-F

TROWEL APPLIED POLYURETHANE-CEMENT MORTAR FOR ANTI-SLIP PAVEMENTS WITH HIGH CHEMICAL, MECHANICAL AND ANTIBACTERIAL PERFORMANCES



DESCRIPTION

MAXURETHANE® CEM-F is a three-component, water-based, polyurethane-cement mortar, to be applied by trowel in layers from 4 to 15 mm. It is designed to provide a continuous anti-slip floor with slightly textured finish and excellent resistance to abrasion, impact, thermal shock and chemical contact.

Antibacterial additives of **MAXURETHANE® CEM-F** inhibit the growth of bacteria at 99 %, providing a bacteria-free and highly cleanliness surface.

APPLICATION FIELDS

- Industrial pavements in petrochemical, pharmaceutical, food industry, etc., with very high mechanical and chemical requirements.
- Flooring systems subject to thermal shock and cycles by steam cleaning, hot liquid spills, high temperature industrial environments, freeze chambers, etc.

- Anti-slip surface floors in wet process areas, liquid loading/unloading areas, slopes with forklift traffic, etc.
- Very high chemical-resistant floors in industrial facilities against cleaning agents, degreasing surfactants, fats, diluted alkalis and acids, hydrocarbons and other aggressive compounds.

ADVANTAGES

- Higher thermal resistance than epoxy coatings: from -40°C up to +150°C.
- Allows steam cleaning treatments with thickness above 9 mm.
- High mechanical properties, compressive strength, abrasion, impact, mechanical cleaning, etc.
- Excellent chemical resistance, higher than epoxy-based systems.
- Hygienic surface with antibacterial activity according to ISO 22196:2011 and JIS Z 2801:2000.

- Allows application on 7 days concrete and on slightly moisture surfaces.
- Applicable in different thickness depending on need and requirement of jobsite.
- Allows different textured finishes depending on the anti-slip resistance desired.
- Continuous pavement, with no construction joints.
- Fast hardening: allows light road traffic in 24 hours.
- Environmentally friendly: non-toxic, solvent-free and non-flammable. Suitable for use in bad ventilated areas.

APPLICATION INSTRUCTIONS

Surface preparation

Surface must be structurally sound, firm, without cement laitance and as uniform as possible, and preferably with a slight roughness, i.e. open textured surface. Minimum bond strength of substrate must be above 1,5 N/mm².

For surface preparation and cleaning, preferably in case of smooth and/or poorly absorbent substrates, use sand blasting or high-pressure water cleaning methods, not being desirable aggressive mechanical or chemical means. Voids, holes, honeycombs, cavities, cold joints, and static cracks without movement or any others defects deeper than 10 mm, once opened and routed must be repaired with patching mortar **MAXROAD**® (Technical Bulletin No. 27).

Surface must be clean and free of paints, coatings, efflorescence, loose particles, grease, oils, curing agents, form release agents, dust, gypsum plasters, organic growth or any other contaminant. Surface moisture content should not exceed 8 % and there must be no rising damp.

The surface to be coated must be primed with **MAXURETHANE**® **CEM PRIMER** (Technical Bulletin No. 369), with an average thickness of 1 mm and estimated consumption of 1,0-1,5 kg/m². Afterwards, while still wet, sprinkle with clean, dry, controlled-grade silica aggregate **DRIZORO**® **SILICA 0308** with an estimated consumption of 1,0-1,5 kg/m². Once dry, after 8-10 hours, remove any loose aggregate by vacuuming or sweeping.

Allow the primer to dry for at least 24 hours before applying **MAXURETHANE**® **CEM -F**.

Mixing

MAXURETHANE® **CEM -F** is supplied as a three-component pre-weighed set. (liquid resin components A and B and powder component C),

to which the pigment component and the **MAXURETHANE**® **CEM EXTENDER** thinner can also be added to improve workability.

Premix liquid components A and B separately, pour them to a clean container and mix until achieving a homogeneous liquid, using a slow speed electric drill (300-400 rpm) fitted with a disc mixer. Then, add gradually component C powder to the liquid and mix as before, for about 2-3 minutes until achieving a smooth, lump-free and homogeneous consistency mortar. Do not mix for prolonged period nor use high-speed mixer, which may heat the mixture or introduce air bubbles.

Allow the mortar to rest for 5 minutes to fully wet out all the powder and then remix again briefly before application. Check Technical Data Table for the pot life of the product (20 minutes at 20°C). This pot life is reduced progressively with higher application temperatures.

Optionally, if greater workability of the mixture is required, particularly at low temperatures, the **MAXURETHANE**® **CEM EXTENDER** thinner may be used; this should be added after mixing resins A and B and before adding the pigment, at a maximum dosage of 5 % by weight of resins A+B.

Application

Place and spread **MAXURETHANE**® **CEM-F** in a single step by trowel or screed, with layers from 4,0 to 15,0 mm thickness. Before the surface begins to set, i.e., about 20-30 minutes at 20°C, use a nylon brush/broom such as **MAXBRUSH**® / **MAXBROOM**® to provide the desired anti-slip resistance and textured finish. For smooth finish, work surface with a metal trowel. Apply on delimited sections in advance that should be finished completely to avoid cold joints in non-desired places.

Use the thixotropic version **MAXURETHANE**® **CEM-C** (Technical Bulletin No. 323) on floor-wall corners.

Expansion joints must not be covered and should be sealed with a suitable flexible sealant from **MAXFLEX**® range.

Application conditions

Do not apply when rain, contact with water, condensation, dampness or dew is expected within the first 24 h after application. The optimum temperature range for application is from 10°C to 30°C. Do not apply with substrate and/or ambient temperature is at or below 5°C, or when temperatures are expected to fall below 5°C within 24 hours after application. Do not apply to frozen surfaces. Ambient and surface temperature must be at least 3°C higher than dew point.

Do not apply with R.H. higher than 85 %. Measure the relative humidity and dew point before applying close to marine environment. With low temperatures and/or high humidity levels, use dry and warm air in order to get the suitable conditions, such as with an electric powered air blower system.

Temperatures above 30°C lead a quick setting between components and heat production, so the pot life is greatly reduced. Avoid applications in areas exposed directly to sunlight at high temperatures.

Curing

Allow **MAXURETHANE® CEM -F** to cure 12 hours for pedestrian traffic and 48 hours for heavy traffic, at 20°C and 50 % R.H. Lower temperature, poor ventilation area and/or higher R.H. increase the curing time.

The use of **MAXURETHANE® CEM EXTENDER** may slightly delay the drying and curing times of **MAXURETHANE® CEM** products, as well as the time required before commissioning.

Cleaning

All tools and equipments must be cleaned immediately with **MAXSOLVENT®** after use. Once product hardens, it can only be removed by mechanical means.

CONSUMPTION

Estimated consumption of **MAXURETHANE® CEM -F** is 2,0 kg/m² per mm thickness.

Consumption may vary depending on porosity, texture, substrate conditions and application method. A preliminary test on-site will determine the total consumption exactly.

IMPORTANT INDICATIONS

- Do not add cements, additives or other compounds.
- Mix mechanically full sets units and do not use leftovers of previous mixes.
- Different mixing ratios, application thickness, surface porosity, curing conditions, etc may produce light differences of colour intensity.

- It can be affected by a superficial colour change over a long period of time exposed to UV rays, but it does not affect the mechanical properties. Use a top coating with **MAXURETHANE® 2C** (Technical Bulletin No. 87).
- For other uses not specified in this Technical Bulletin or further information, consult our Technical Department.

PACKAGING

MAXURETHANE® CEM -F is supplied in pre-weight three-component set of 30,94 kg: Component A in 2,73 kg plastic can, Component B in 3,21 kg plastic can and Component C in 25 kg bag.

The pigment, that is supplied in 5 kg and 25 kg, is available in standard grey, white, red and green colour. Other colours available on request.

MAXURETHANE® CEM EXTENDER is supplied in 5 kg metallic can.

STORAGE

Twelve months in its unopened original packaging. Store in a cool, dry and covered place, protected from moisture, frost and direct sunlight, with temperatures from 5°C to 35°C.

SAFETY AND HEALTH

MAXURETHANE® CEM-F is not a toxic product but is an abrasive compound. Avoid direct contact with skin and eyes and breathing dust. Use rubber gloves and safety goggles when mixing and applying the product. In case of skin contact, wash affected area with soap and water. In case of eye contact, rinse immediately thoroughly with clean water but do not rub. If the irritation persists, seek medical assistance.

Consult the Material Safety Data Sheet for **MAXURETHANE® CEM -F**.

Disposal of the product and its packaging should be carried out according to the current official regulations and it is the responsibility of the final user of the product.

TECHNICAL DATA

Product characteristics	
<i>CE Marking, UNE-EN 13813</i>	
Description: Polymer modified cementitious screed material. EN 13813 CT-C50-F10	
Uses: Indoor applications in constructions as a wearing surface	
General appearance and colour	Grey, white, red or green mortar
Density components A / B / C, (g/cm ³)	0,99 / 1,23 / 1,50 ± 0,10
Density fresh mortar (A+B+C), (g/cm ³)	2,05 ± 0,10
Density for cured and dry product, (g/cm ³)	2,00 ± 0,10
Application and curing conditions	
Minimum application temperature for substrate and ambient, (°C)	> 5
Pot life at 20°C, (min)	20
Initial/Final setting time at 20°C, (h)	1-2 / 3-4
Total curing time at 20°C & 50 % H.R., (h)	
- Pedestrian traffic	12
- Light-moderate road traffic	24
- Heavy road traffic	48
Cured product characteristics	
Compressive strength at 28 days, EN 13892-2 (N/mm ²)	57,6 – C50
Flexural strength at 28 days, EN 13892-2 (N/mm ²)	14,4 – F10
Wear resistance BCA, EN 13892-4 (µm)	30 – AR 0,5
Elastic modulus, EN ISO 178 (kN/mm ²)	2,9 – E2
Impact resistance, EN ISO 6272 (N·m)	IR 14,7
Adhesion on concrete at 28 days, EN 13892-8 (N/mm ²)	3,5 – B2,0
Slip/skid resistance value, UNE-ENV 12633	Class 3
Fire classification, UNE-EN 13501-1:2007	Bfl - s1
Temperature resistance	
- ≥ 4,0 mm thick	From -15°C to +60°C
- ≥ 6,0 mm thick	From -25°C to +70°C
- ≥ 9,0 mm thick	From -40°C to +120°C
- ≥ 12,0 mm thick	From -40°C to +130°C (Occasionally up to +150°C)
Resistance to severe chemical attack, EN 13529 (Reduction in Shore hardness)	Class I: G-1 (4%), G-9 (5%), G-10 (6%), G-11 (5%) Class II: G-1 (5%), G-9 (7%), G-10 (7%), G-11 (6%)
Antibacterial activity, ISO 22196:2011 / JIS Z 2801:2000	<ul style="list-style-type: none"> - Staphylococcus aureus - Klebsiella pneumoniae - Proteus vulgaris - Salmonella sp. - Enterococcus faecalis - Streptococcus pyogenes - Bacillus subtilis
	Pass
	Pass
	Pass
	Pass
	Pass
	Pass
	Pass
	Pass
Thickness / Consumption*	
Minimum and maximum thickness per layer, (mm)	4-15
Consumption per layer, (kg/m ² ·mm thickness)	2,0

* Consumption may vary depending on porosity, texture, substrate conditions and application method. Perform a preliminary test on-site to determine the consumption exactly.

GUARANTEE

The information contained in this leaflet is based on our experience and technical knowledge, obtained through laboratory testing and from bibliographic material. **DRIZORO®**, **S.A.U.** reserves the right to introduce changes without prior notice. Any use of this data beyond the purposes expressly specified in the leaflet will not be the Company's responsibility unless authorised by us. We shall not accept responsibility exceeding the value of the purchased product. The data shown on consumptions, measurement and yields are for guidance only and based on our experience. These data are subject to variation due to the specific atmospheric and jobsite conditions so reasonable variations from the data may be experienced. In order to know the real data, a test on the jobsite must be done, and it will be carried out under the client responsibility. We shall not accept responsibility exceeding the value of the purchased product. For any other doubt, consult our Technical Department. This version of bulletin replaces the previous one.