



MAXURETHANE®

BIO-HYGIENE

POLYURETHANE RESIN WITH ANTIBACTERIAL PROPERTIES FOR HYGIENIC FLOORING SYSTEMS



DESCRIPTION

MAXURETHANE® BIO-HYGIENE is a two-component, antibacterial, highly hygienic, solvent-free, pigmented polyurethane binder designed to provide a wide range of flooring systems with high mechanical and chemical properties, for protection and decorative finish of concrete pavements and cement mortars.

Additives of **MAXURETHANE® BIO-HYGIENE** exterminates more than 99% of bacteria, providing a bacteria-free and highly cleanliness surface.

MAXURETHANE® BIO-HYGIENE can be applied with different finishing:

- Smooth sealing finishing coat.
- Anti-slip system with aggregate broadcasting between coats.
- Smooth finishing applied as fluid mortar until 2 mm thickness.

APPLICATION FIELDS

- Emergency rooms, hospitals, healthcare facilities areas, pharmaceutical industry and other health care centres where a highly hygienic pavements are required.
- Kitchens, food processing areas, cannery industries, slaughter houses, wholesale markets or any other areas which require especially clean environments.
- Anti-slip broadcast multilayer systems for processing wet areas, stairs, access ramps, loading docks, fridge chambers, maintenance rooms, etc.
- Chemical protection and abrasion resistant coating suitable for pharmaceutical, chemical and food industry.

ADVANTAGES

- Hygienic surface with antibacterial activity against *Escherichia coli* and *Staphylococcus aureus*, according to ISO 22196:2011 and JIS Z 2801:2000.
- High abrasion and wearing resistance. Suitable for heavy traffic and industrial areas.
- Very good chemical resistance against a wide range of compounds: oils and greases, petrol, acid and alkali solutions, solvents, salts, etc.
- Excellent adhesion on concrete and cement mortar substrates.
- Provides a continuous, seamless, uniform and compact surface, with anti-dust finish. Easy cleaning and hygienic maintenance.
- Wide range of possible thickness and textures finishing, with huge range of colour options..
- Environmentally friendly: non-toxic, non-flammable and solvent-free product. Suitable for poor ventilated areas.

APPLICATION INSTRUCTIONS

Surface preparation

Surface must be structurally sound, firm, without cement laitance, as uniform as possible and preferably with a slight roughness, i.e. open textured surface. Minimum tensile strength of substrate must be 1 N/mm². It 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 contaminants that may affect the adhesion. Surface moisture content should not exceed 5 %. Do not apply on substrates subject to rising damp or negative water pressure.

For surface cleaning and preparation, preferably in case of the smooth and/or poorly absorbent substrates,

provide a mechanical texturing by abrasive disc, dry sand-blasting, scarification or other abrasive method to achieve at least a slightly textured surface, not being desirable aggressive mechanical or chemicals means. Finally, vacuum the dust and loose particles.

Voids, holes, cold joints, and static cracks or any others defects deeper than 10 mm, once opened and routed must be repaired with patching mortar **MAXROAD®** (Technical Bulletin No. 27).

Expansion joints and fissures/cracks subject to movements, once opened must be sealed with any suitable sealant of **MAXFLEX®** range.

Mixing

MAXURETHANE® BIO-HYGIENE is supplied as a pre-weighed two-component set. Premix the components separately, and then pour all the hardener component B, on the resin component A. Mix mechanically by low speed drill (300-400 rpm. maximum) fitted with a suitable liquid mixer, until achieving a homogeneous product in colour and appearance. Do not mix for prolonged period which may heat the mixture nor use high-speed mixer in order to avoid introducing air bubbles.

Pot life before application at 20 °C is 30 minutes. Higher temperatures reduce this pot life.

To prepare a fluid mortar, pour the mixed binder (A+B) into a clean container, and then add the dry and clean silica sand **DRIZORO® SILICA 0204** while mixing, until achieving a homogeneous mortar in colour and appearance. The binder:aggregate mixing ratio is 1:1 by weight. In case of preparing a trowelable mortar, the binder:aggregate mixing ratio is 1:3 by weight.

Application

Priming:

On porous surfaces, apply by brush or roller the solvent-free epoxy primer **MAXEPOX® PRIMER** (Technical Bulletin No. 45) or solvent-free polyurethane primer **MAXURETHANE® PRIMER** (Technical Bulletin No. 380) with a recommended consumption of 0,25 - 0,3 kg/m², and allow to dry from 14 to 16 hours. In any case drying time must exceed 24 hours.

In case that substrate may have residual humidity, apply the water-based epoxy primer **MAXEPOX® PRIMER-W** (Technical Bulletin No. 372) with an estimated consumption of 0,20 - 0,3 kg/m², depending on substrate porosity. Allow this primer to dry completely before applying **MAXURETHANE® BIO-HYGIENE**, i.e., about 12-16 hours, and a maximum time of 24 hours depending on temperature and relative humidity conditions.

Pure sealer coating:

Over very low or null porosity substrates, previous primer coating will not be required. Apply directly **MAXURETHANE® BIO-HYGIENE** (components A+B) using a brush, short-piled roller or air-less spray equipment in two successive coats, with a minimum time lapse of 8 hours and maximum of 16 hours, depending of temperature conditions.

Anti-slip broadcast multilayer system:

Once the primer is dry, apply a first pure coat by brush, short-piled roller or air-less spray equipment of **MAXURETHANE® BIO-HYGIENE** (components A+B) with an estimated consumption of 0,5 - 0,6 kg/m², and while it is still fresh, broadcast dry and clean silica sand **DRIZORO SILICA 0204** or **DRIZORO SILICA 0308** depending on required roughness, with an estimated coverage of 1 - 1,5 kg/m². Once it is dry, i.e., after 24 hours, sweep and vacuum surface to remove excess of sand, and apply a second pure coat of **MAXURETHANE® BIO-HYGIENE** (components A+B) as

topcoat with an estimated consumption of 0,5 - 0,6 kg/m².

Fluid mortar (1 -2 mm thickness):

Once the primer is dry, apply by toothed trowel **MAXURETHANE® BIO-HYGIENE** mixed with **DRIZORO® SILICA 0204** with proportion 1:1-0,7 in a 2 mm maximum thickness layer. Before material begins to set, from 15-20 min, use a spiked roller to obtain an optimum finish and remove possible air bubbles on surface.

Trowelable mortar:

Once the primer is dry, apply evenly by metal trowel **MAXURETHANE® BIO-HYGIENE** mixed with **DRIZORO® SILICA** up to desired thickness in layers between 3 to 10 mm maximum. Finish with finishing trowel.

Application conditions

Do not apply when environment or substrate temperature is below to 5°C or lower temperatures are expected first 24 hours after its application. Avoid its contact with water, moisture, dew, condensation, etc during first 24 setting hours. Environment and substrate temperature must be at least 3°C higher than dew point. Do not apply when relative humidity exceeds 85%. Measure R.H. and dew point in marine environment applications. When detailed temperature and humidity conditions exceed the maximum specified values, proper conditions by warm air ventilation.

Temperatures above 30 °C lead a quick-setting between components and heat production, which greatly reduce product's pot life.

Curing

Allow **MAXURETHANE® BIO-HYGIENE** to cure at least 1 day for pedestrian traffic and 4 days for heavy traffic, at 20 °C and 50% R.H. Applications at lower temperatures or high humidity conditions increase the required curing time.

Cleaning of the tools

All mixing and application tools must be cleaned immediately with **MAXURETHANE® SOLVENT** after their use. Once product cures, it can only be removed by mechanical means.

CONSUMPTION

Pure sealer coating: Estimated consumption of **MAXURETHANE® BIO-HYGIENE** is 0,25 - 0,30 kg/m² per coat (with total consumption of 0,60 - 0,7 kg/m² in two coats).

Anti-slip broadcast multilayer system: Estimated consumption of **MAXURETHANE® BIO-HYGIENE** is 0,5 - 0,6 kg/m² per coat (with a total consumption of 1 - 1,2 kg/m² in two coats) and 1-1,5 kg/m² of **DRIZORO® SILICA**.

Fluid mortar: Estimated consumption of mortar is 1,6 kg/m²-mm thickness (0,8 kg/m²-mm of **MAXURETHANE® BIO-HYGIENE A+B** and 0,8 kg/m²-mm of **DRIZORO SILICA 0204** for 1:1 mixing ratio). Maximum recommended thickness per layer is up to 2 mm.

Trowelable dry mortar: Estimated consumption of mortar is 1,9 kg/m²-mm thickness (0,4 kg/m²-mm of **MAXURETHANE® BIO-HYGIENE A+B** and 1,5

kg/m²·mm of **DRIZORO SILICA 0308**). Maximum recommended thickness per layer is up to 10 mm. These estimated figures are for guidance only and may vary depending on porosity, texture, substrate conditions and application method. Perform a preliminary test on-site to ascertain the total consumption exactly.

IMPORTANT INDICATIONS

- Surface moisture content must not exceed 5%. Do not apply on substrates subject to rising damp or negative hydrostatic pressure.
- Avoid contact with water, damp, dew, condensation, etc for the first 24 hours.
- Allow new concrete and mortar to cure a minimum of 28 days before coating.
- Do not add solvents, thinners, additives or other non-specified compounds.
- **DRIZORO® SILICA** must be thoroughly dry before its mixing with **MAXURETHANE® BIO-HYGIENE**.
- For other uses not specified on this Technical Bulletin or further information, consult our Technical Department.

PACKAGING

MAXURETHANE® BIO-HYGIENE is supplied in 25 kg pre-weighed set. Component A in 20 kg drum and component B in 5 kg drum. It is available in grey, red, green and white colour. Other colours are available upon special request.

DRIZORO® SILICA is supplied in 25 kg bags (Consult its Technical Bulletin No.308).

STORAGE

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

Temperatures below 5 °C may lead to the crystallisation of product components. Should this happen, it must be heated slowly at moderate temperature while it is regularly stirred until achieving its homogeneous and original lump-free appearance.

SAFETY AND HEALTH

MAXURETHANE® BIO-HYGIENE is not a toxic product but direct contact with skin and eyes must be avoided. Use rubber gloves and safety goggles during its application. 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 for medical assistance.

Consult the Material Safety Data Sheet for **MAXURETHANE® BIO-HYGIENE**.

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		
Color	Grey, white, red and green	
A:B mixing ratio, (by weight)	4:1	
A+B:C mixing ratio as fluid mortar, (by weight)	1:1	
A+B:C mixing ratio as dry mortar, (by weight)	1:3	
A+B+C solids content, (% by weight)	100	
A+B density, (g/cm ³)	1,25 ± 0,1	
Flash point	Non-flammable	
Application and curing conditions		
Application conditions, T (°C) / R.H. (%)	5 – 35 / < 85	
Pot life at 20 °C, (min)	30	
Drying- time between coats at 20 °C, (hours)	8 – 16	
Curing time at 20 °C, (days)	1/ 2/ 4	
- Pedestrian traffic/ light traffic / heavy traffic		
Cured product characteristics		
Adhesion on concrete at 28 days, EN 13892-8 (N/mm ²)	>2,5	
Temperature range of use for dry conditions, (°C)	-40 to 90	
Antimicrobial activity, UNE ISO 22196:2011 / JIS Z 2801:2000	- Escherichia coli, % bacteria decrease - Staphylococcus aureus, % bacteria decrease	Pass (99,84%) Pass (99,88%)
Thickness / Consumption*		
Pure coating		
- Consumption per coat / per total consumption, (kg/m ²)	0,25 – 0,3 / 0,5 - 0,6	
- Thickness per coat / per total application (µm)	200 – 240 / 400 – 480	
Anti-slip broadcast multilayer		
- Total thickness, (mm)	1 - 2	
- Consumption of resin per coat / per total application, (kg/m ²)	0,5 - 0,6 / 1,0 - 1,2	
- Consumption of DRIZORO® SILICA per application, (kg/m ²)	1,0 - 1,5	
Fluid polyurethane mortar		
- Mixing ratio binder resin: DRIZORO® SILICA 0204 (by weight)	1:1	
- Thickness per application, (mm)	1 - 2	
- Consumption of mortar, (kg/m ² ·mm thickness)	1,6	
Trowelable polyurethane mortar		
- Mixing ratio binder resin: DRIZORO® SILICA 0308 (by weight)	1:3	
- Thickness per application, (mm)	3 - 10	
- Consumption of mortar, (kg/m ² ·mm thickness)	1,9	

* These estimated figures are for guidance only and may vary depending on porosity, texture, substrate conditions and application method. Perform a preliminary test on-site to ascertain the total consumption exactly.

CHEMICAL RESISTANCE

Chemical compound	Concentration (% by weight)	Result
Acetic, acid	2	+
	10	(+)
Acrylic, acid	2	+
	10	+
Hydrochloric, acid	10	+
	20	(+)
Citric, acid	5	+
Hydrofluoric, acid	2	+
Formic, acid	2	+
	10	(+)
Phosphoric, acid	15	+
	50	(+)
Lactic, acid	2	+
	10	+
Nitric, acid	15	+
	50	-
Sulphuric, acid	5	+
	50	-
Tannic, acid	5	+
Tartaric, acid	5	+

Chemical Substance / Compound	Concentration (% by weight)	Result
Acetone	Pure	(+)
Dichloroethane	Pure	-
Ethylene glycol	Pure	(+)
Phenol	Pure	-
Formaldehyde	Pure	(+)
Glycerine	Pure	+
Methanol	Pure	(+)

Chemical Substance / Compound	Concentration (% by weight)	Result
Animal oil	Pure	+
Motor oil	Pure	+
Diesel oil	Pure	+
Petroleum	Pure	+
White-spirit	Pure	+

Test results after 500 hours at 20 °C:

- + Resistant
- (+) Temporary resistant
- Non-resistant

Chemical Substance / Compound	Concentration (% by weight)	Result
Ammonia, solution	10	+
Sodium hypochlorite	2	+
	20	+
Potassium hydroxide	20	+
Potassium permanganate	5	+
	10	+
Hydrogen peroxide	1	+
	10	+
Calcium sulphate	10	+
Potassium sulphate	10	+
Ammonium sulphate	10	+
Sodium hydroxide	10	+

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.

**DRIZORO, S.A.U.**

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