



# MAXEPOX<sup>®</sup>

## FLEX

### HIGH PERFORMANCE FLEXIBLE EPOXY SYSTEM FOR WATERPROOFING AND PROTECTION CONCRETE AND STEEL SURFACES

#### DESCRIPTION

**MAXEPOX<sup>®</sup> FLEX** is a two-component, solvent-free and flexible epoxy formulation suitable for its use as protective and waterproofing coating for concrete, cement mortar, ceramic and metal substrates.

#### APPLICATION FIELDS

- Waterproofing and protective coating of drinking water tanks.
- Waterproofing and chemical protection for concrete and metal surfaces in underground works, foundations, cooling towers, sewers, water pipes, etc.
- Preparation of self-levelling epoxy mortars for coating of concrete slabs subject to high wearing in garages, warehouses, sport centres, etc.
- Waterproofing and protection of concrete structures where movements are expected.
- Chemical and wearing protection for pavements in food industry, pharmaceutical industry, production centres, garages, etc.
- Multi-layered coating by sand dusting with anti-slippery finish.
- Protection coating in reservoir and storage tanks for aggressive substances and areas exposed to spills and splash of aggressive compounds.

#### ADVANTAGES

- Approved for contact with drinking water.
- Great flexibility and mechanical properties, withstands thermal movements and vibrations of the substrate.
- Very good capacity to bridge cracks.
- High abrasion and wear resistance.
- Excellent adhesion on common construction surfaces: concrete, cement mortars, fibre-cement, porous ceramic and metal surfaces.
- Very good chemical resistance against soil salts, oils, petrol, acid and alkalies diluted, etc.
- Great resistance in permanent immersion

conditions.

- Non-toxic, solvent-free and non-flammable. Suitable for poor ventilated working areas.

#### APPLICATION INSTRUCTIONS

##### Surface preparation

Concrete surface must be solid, firm, rough and healthy, without bad adhered parts, surface laitance and as uniform as possible. Must be clean, free of paints, efflorescences, loose particles, greases, deform oils, dust, plaster, etc., or other substances that could affect the adhesion of the product. There must not exist capillary rising moisture. Surface humidity should not exceed 4%.

Consult our technical note *Preparation of concrete surfaces for application of epoxy base coatings* for further information.

Honeycombs, voids and cracks without movement, once opened and boxed up to a minimum depth of 2 cm, will be repaired with a **MAXREST<sup>®</sup>** structural repair mortar (Technical Bulletin No. 2). Exposed rebars and metal elements should be cleaned and passivated with **MAXREST<sup>®</sup> PASSIVE** (Technical Bulletin No. 12). Surface and non-structural irons will be cut up to a depth of 2 cm and covered with structural repair mortar.

Metallic surfaces must be sandblasted or shotblasted in order to remove any remaining of corrosion, and must be degreased, dry and free of dust.

Expansion joints and fissures subjected to movements, once prepared and cleaned, will be treated with a suitable sealer from the **MAXFLEX<sup>®</sup>** range.

On porous substrates, it is recommended to apply a primer layer of **MAXPRIMER<sup>®</sup>** (Technical Bulletin No. 45) or **MAXEPOX<sup>®</sup> PRIMER** (Technical Bulletin No. 174) with an estimated consumption of 0,2-0,3 kg/m<sup>2</sup> depending on the surface porosity. If the support has some residual humidity, apply a primer coating of the water-based epoxy primer **MAXEPOX<sup>®</sup> PRIMER -W** (Technical Bulletin No. 372) with an estimated consumption of 0,20-0,30 kg/m<sup>2</sup>. In this case, prior

to the application of **MAXEPOX® FLEX** it is necessary that the **MAXEPOX® PRIMER -W** film is completely dry. It will occur 12-24 hours after its application, depending on the environmental temperature and humidity.

### Mixing

**MAXEPOX® FLEX** is supplied in pre-weighed sets. The hardener, component B, is poured into the resin, component A. In order to ensure the proper reaction of the two components make sure all of component B is added.

The mixture can be done manually or better using a low speed drill (300 rpm maximum), until achieving a homogeneous product in colour and appearance. Do not mix for prolonged period nor use high-speed mixer, which may heat the mixture or introduce air bubbles.

Verify the pot life after mixing in the Technical Data. At 20 °C pot life for application is 30 minutes.

If the preparation of a self-levelling epoxy mortar is required, it is advisable to pour the binder into a clean container and add silica sand while mixing well until a homogeneous appearance is achieved. **DRIZORO®** can supply this appropriate high quality aggregate already pre-weighed. It must be clean and dry, free from dust, fine fillers and clay. The mixing ratio binder:aggregate depends on size and workability desired. A 0,1–0,5 mm aggregate size is recommended with an approximate ratio 1:1 by weight.

### Application

Preferably, apply the **MAXEPOX® FLEX** by solvent-resistant brush or short-hair roller in order to guarantee that product penetrates in pores and voids. In spraying methods application, dilution with **MAXSOLVENT®** for application performance enhance is highly recommended. Once both components A and B are properly mixed, add a maximum 5% solvent to the mixture.

*As pure coat:* Apply **MAXEPOX® FLEX** using a brush or roller, in two successive coats with a minimum time lapse of 3 hours and maximum of 24 hours. Apply two coats in cross direction with an estimated consumption of 0,30-0,35 kg/m<sup>2</sup> per coat (total consumption of 0,60–0,70 kg/m<sup>2</sup>) which must create a continuous and uniform coating.

For a non-slip surface, apply a first coat of **MAXEPOX® FLEX** with an estimated consumption of 0,35 kg/m<sup>2</sup> and while the coat is still fresh, broadcast dry and clean silica sand with a size between 0,2–0,4 mm **DRIZORO® SILICA 0204** and with a coverage of 1,5 kg/m<sup>2</sup>. Once it is dry (approximately 6 hours after its application depending on ventilation and environmental conditions) sweep and vacuum surface to remove

excess sand. Then, apply a second coat of pure **MAXEPOX® FLEX** as topcoat.

*1-2 mm thickness self-levelling epoxy mortar:* over all the primed area with **MAXPRIMER®** or **MAXEPOX® PRIMER** using a trowel to the required thickness. Application thickness is estimated between 1 and 2 mm, and open time before the beginning of the setting process is estimated in 15-20 minutes. Before this interval a spike roller must be used in order to remove the air of the mixture. After 24 hours, if required, a topcoat as finish on the epoxy mortar can be done using **MAXEPOX® FLEX** itself or other specific epoxy or polyurethane coating of **DRIZORO®**.

### Application condition

Do not apply if contact with water, moisture or condensation is expected within next 24 hour after the application.

Optimum working temperature range is expected between 10°C and 30°C. Do not apply if substrate and/or ambient temperature is below 10°C or lower temperatures are expected within first 24 hours after the application. Do not apply over frozen or frost-covered surfaces.

Environmental and substrate temperature must be 3°C higher than dew point. Do not apply when relative humidity value exceeds 85%. Measure the relative humidity and dew point in applications close to marine environment.

In case of lower temperatures or higher relative humidity conditions, appropriate conditions must be provided by renewable hot air.

Applications above 30°C could produce an increase of reactivity of the product and overheating of the mixture, which will decrease the pot life of the mixture.

### Curing

Curing time for permanent immersion conditions, flooding test or putting into service is 4 days at 20 °C and 50 % R.H. Lower temperature and higher R.H increase curing time.

With temperatures higher than 30°C, material must be protected against direct sunlight exposition.

### Cleaning

All tools and equipment must be cleaned with **MAXEPOX® SOLVENT** immediately after their use. Once it hardens, product can only be removed by mechanical methods.

### CONSUMPTION

*As pure coats:* It requires an approximate total consumption between 0,6–0,7 kg/m<sup>2</sup> (0,3–0,35 kg/m<sup>2</sup> per coat) to achieve a recommended total thickness of 350-400 microns (175–200 µm per coat).

*Self-levelling epoxy mortar:* estimated total consumption is 2 kg/m<sup>2</sup>/mm (1 kg/m<sup>2</sup> of Component A+ Component B and 1 kg/m<sup>2</sup> of dry silica sand aggregates Component C, by applied millimetre). Maximum application thickness is estimated in 2 millimeters.

Consumption may vary depending on porosity and substrate conditions, a preliminary test on-site will determine consumption exactly.

## IMPORTANT INDICATIONS

- Do not apply over substrates subjected to ascendant capillary moisture or negative hydrostatic pressure. Surface humidity must be below 4%. Allow the substrate to dry after rainfalls, dew, condensation or any situation which can increase the content of water as weather inclemency or substrate cleaning.
- Allow new concrete and mortar to dry 28 days before application.
- Do not apply when relative humidity value is above 85%. It could stop the curing process of the product, as disturb final colour as well.
- Do not add different solvent than the specified one or to add any non-specified additive to the mixture. It can change the product composition, affecting and stopping the curing process.
- Component C must be perfectly clean and dry before the addition to the A+B mixture.
- **MAXEPOX® FLEX** does not resist permanent contact with aromatic hydrocarbon compounds.
- Do not exceed recommended coat thicknesses.
- For any other use not specified in this Technical Bulletin or further information, consult our Technical Department.

## PACKAGING

**MAXEPOX® FLEX** is supplied in pre-weighed sets of 10 and 20 kg. It is available in green, red, grey and blue color.

**MAXEPOX® FLEX** (Component C) is supplied in 25 kg bags.

## STORAGE

Twelve months in its original unopened set, in a dry and covered place at temperatures above 5 °C and below 30 °C. Protect against direct sunlight and frost. Temperatures below 5 °C lead the crystallisation of the product. Should this happen, it must be heated slowly between 80-90 °C while is regularly stirred until achieving its homogeneous and original lump-free conditions.

## SAFETY AND HEALTH

**MAXEPOX® FLEX** is not a toxic product but skin and eye contact must be avoided. When mixing and applying, do not work without the protection of rubber gloves and safety goggles. In case of eye contact, rinse immediately with clean water but do not rub. In case of skin contact, wash affected area with abundant water and soap. If irritation persists, seek medical assistance. If ingested, seek immediate medical assistance. Not induce vomiting.

It is available Safety Data Sheet of **MAXEPOX® FLEX** by request.

Disposal of the product and its empty packaging must be made by the final user and according to official regulations.

## TECHNICAL DATA

Product characteristics		
CE Marking, EN 1504-2 Description. Epoxy coating for protection of concrete. Coating (C). Principles / Methods. Protection against ingress with coating (Principle 1-PI/1.3) and Moisture control with coating (Principle 2-MC/2.2)		
CE Marking, UNE-EN 13813 Description: Synthetic resin screed. EN 13813 SR-B2,0-AR0,5-IR14,7 Uses: Wearing surface for interior applications		
General appearance and colour for component A	Coloured viscous liquid	
General appearance and colour for component B	Yellow clear liquid	
Mixing ratio for A:B mixture, (by weight)	4:1	
Solid content for A+B mixture, (% by weight)	100	
Density for A+B mixture, (g/cm <sup>3</sup> )	1,76 ± 0,10	
Application and curing conditions		
Temperature / Relative Humidity, (°C / %)	Ambient >10 / <85	Substrate >10 / <4
Pot life at 10°C / 20°C / 30 °C, (min)	90 / 30 / 10	
Drying time to touch at 20 °C, (h)	3 – 6	
Minimum / Maximum waiting time between coats at 20 °C, (h)	3 / 24	
Total curing time at 20 °C & 50% H.R. - Permanent immersion, flooding test o putting into service, (d)	4	
Cured product characteristics		
Crack-bridging ability, UNE 104309 (mm) - Progressive method at 23 °C / after 12 h at -5 °C - Instant method at 23 °C / after 12 h at -5 °C	0,63 / 0,80 0,58 / 0,67	
Tensile strength, ASTM D-412 (MPa)	10,1	
Elongation at break, ASTM D-412 (%)	60	
Adhesion on concrete, ASTM D-4541 (MPa)	4,09	
Adhesion on steel, ASTM D-4541 (MPa)	1,25	
Abrasion resistance (Taber Index), ASTM D-4060. Wearing index (Abrading wheel: CS-10 & Load: 0,5 kg)	500 Cycles 0,06	1.000 Cycles 0,06
Flash point	Non flammable	
Slip/skid resistance value, UNE-ENV 12633	Class 2	
Suitability for contact with potable water European Directive 2020/ 2184 and Spanish RD 03/ 2023	Approved	
Suitability for contact with potable water British Standards BS-6920	Approved	
Thickness / Consumption*		
Waterproof and protective coating: - Consumption per coat / total application, (kg/m <sup>2</sup> ) - Thickness per coat / total application, (µm)	0,30 – 0,35 / 0,6 – 0,7 170 – 200 / 350 – 400	
Multilayered flooring system: - Consumption of A+B / aggregate, (kg/m <sup>2</sup> ) - Thickness, (mm)	1,0 – 1,2 / 1,0 – 1,5 1,0 – 2,0	
Self-levelling epoxy mortar: - Binder (A+B) to aggregate (Component C) mixing ratio, (by weight) - Consumption, (kg/m <sup>2</sup> .mm) - Thickness per layer, (mm)	1:1 2,0 1,0 – 2,0	

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

## 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.