DRIZORO® Construction Products

MAXSEAL® FLEX

FLEXIBLE WATERPROOF COATING AGAINST POSITIVE AND NEGATIVE PRESSURE FOR CONCRETE AND MASONRY CE

DESCRIPTION

MAXSEAL® FLEX is a two-component product. Component A is a water-based special acrylic resin and component B, is a mortar based on a mixture of special cements, additives and well-graded aggregates. Once applied and cured, ***MAXSEAL® FLEX*** provides a non-toxic, flexible and waterproof coating with very high adhesion on those common substrates in construction such as concrete, natural and artificial stone, traditional mortar plasters, bricks, concrete blocks, etc.

APPLICATION FIELDS

- Waterproofing and protection of water retaining structures, such as drinking water tanks, reservoirs, water mains and swimming pools.
- Waterproofing and protection of drinking water tanks.
- Waterproofing of below-grade structures like basements, retaining walls, foundations, tunnels, galleries subjected to negative high-water pressure.
- Waterproofing and protection of concrete in water treatment plants: water processing units, setting tanks, etc.
- Waterproofing and protection from the outside against aggressive water and/or ground salts in foundations, retaining walls and, in general, structures below the water table, subjected to indirect and/or direct pressure.
- Waterproofing and protection against weathering, carbonation process, freeze/thaw cycles, de-icing salts and chloride attack on concrete, mortar and masonry in buildings, civil, hydraulic, and industrial works.

- Waterproofing of roofs, terraces, balconies in the open or under pavements, and window boxes, gardens and other surfaces subject to root penetration.
- Tile fixing and waterproofing under tile and pavement in bathrooms, kitchens and other wet rooms in hotels, hospitals, offices and residential buildings, in indoor or outdoor use.
- Waterproofing of construction elements and substrates formulated with gypsum and/or gypsum derivatives, such as plaster, plaster rendering and gypsum plastering, gypsum/fibre-gypsum boards (Pladur), etc.

ADVANTAGES

- Provides a fully flexible coating which ensures complete waterproofing even in the most severe conditions, with the ability to bridge microcracks and shrinkage cracks.
- Excellent impermeability. Withstands high positive and negative hydrostatic pressures.
- Permeable to water vapour, allows the substrate to breathe.
- Acts as an anti-fracture membrane between the substrate and other finishing coats if applied.
- Applicable on wet substrates.
- Non-toxic and chloride-free. Suitable for contact with potable water.
- Excellent protection of concrete against CO_2 ingress, i.e. carbonation process, chlorides (Cl), i.e., electrochemical corrosion, sulphates that degrade concrete, air pollution and freeze-thaw cycles.
- Excellent adhesion and easy to use. Does not require bonding agents and can be applied on wet surfaces.
- Suitable as a highly durable decorative finish with zero maintenance.
- Resistant to aggressive media; marine environment, air pollution, salt water, etc.
- Resistant to abrasion and UV rays.
- Once cured, it can be coated with protective mortars/decorative finish such as; ***CONCRESEAL®*** ***PLASTERING*** (Technical Bulletin No. 06) or with ceramics, mosaic tiles, stone, etc., with adhesives such as ***MAXKOLA® FLEX*** (Technical Bulletin No. 81) in swimming pools, decorative murals, kitchens, bathrooms, etc.
- Withstands the root penetration, when properly reinforced with fibber glass mesh.
- Easy to apply by brush, broom, roller, or spraying means.
- Environmentally friendly: cement-based product and solvent-free formula.

APPLICATION INSTRUCTION

Surface preparation

Surface to be waterproofed must be solid, sound, rough, and without poorly adhered parts, superficial grouts and as uniform as possible. Likewise, it must be clean, free of paints, efflorescence, loose particles, greases, release oils, dust, plaster, etc., or other substances that could affect the adhesion of the product.

If the surface has previously been coated with lime or acrylic treatments, etc., these must be removed, leaving only the remains strongly adhered. For cleaning and preparing the substrate, preferably in smooth and/or poorly absorbent ones, use sandblasting or high-pressure water to provide an open texture surface. Aggressive mechanical means are not advisable.

Before the application of ***MAXSEAL® FLEX***, all holes and cracks must be opened at least 2,0 cm and then, patched with ***MAXREST®*** (Technical Bulletin No. 02). If water leaks are present, ***MAXPLUG®*** (Technical Bulletin No. 04) should be used.

Reinforcement bars and other metal elements exposed during the substrate preparation must be cleaned and passivated with ***MAXREST® PASSIVE*** (Technical Bulletin No. 12), while surface and non-structural irons must be cut to a depth of 2 cm and subsequently covered with a suitable structural repair mortar.

To minimise the any possible damage caused by the crystallisation of salts from the substrate, apply an

anti-efflorescence treatment such as ***MAXCLEAR® SULFALT*** (Technical Bulletin No. 163).

Once surface has been repaired, the entire surface to be coated should be thoroughly saturated with clean water. Allow excess water to drain away before applying ***MAXSEAL® FLEX***. Do not leave free-standing or pooled water on the surface.

Mixing
MAXSEAL® FLEX is supplied as two pre-weighed components. Pour the resin, component A, into a clean container and add the powder gradually, component B, while mixing with a low-speed mixing drill (400-600 rpm) about 2-3 minutes until a homogeneous mixture free of lumps is achieved. Allow the mixture to rest for 5 minutes and then remix briefly prior to application. Depending on existing temperature and R.H. climate conditions, pot life expected will be between 30 minutes and one hour.

Application
To fill and cover properly all pores and voids, ***MAXSEAL® FLEX*** should be applied by means of a fibre brush or a nylon fibre broom, such as ***MAXBRUSH®*** or ***MAXBROOM®*** respectively. Apply the product to surface in a thick layer, making up a homogeneous and continuous coating. Do not spread the product as if it were paint. Apply two coats with a recommended consumption from 1,0 to 1,5 kg/m^2 per coat, i.e. a total consumption from 2,0 to 3,0 kg/m^2, ensuring that the thickness per coat is about 1 mm. Once the mortar has been placed and spread evenly, do not go over with the brush or broom. It can also be applied by trowel when a smooth finish is required.

Allow a minimum of 12-16 hours and a maximum of 24 hours between applications. Prior to application thoroughly wash down and saturate the surface, but do not leave free standing water. The second coat can be applied and finished by roller.

For large areas ***MAXSEAL® FLEX*** can also be sprayed, being the recommended nozzle size 3-4 mm and spraying pressure between 3,5-5,0 bar. When sprayed, it is recommended to finish the fresh coat with a broom to make sure that the whole surface is covered completely.

If ***MAXSEAL® FLEX*** is going to be rendered on vertical surfaces, it is advisable to apply the second layer horizontally. For pipelines, a second layer should be applied in the direction of the water flow.

In those areas such as fissures, concrete joints and active cracks, once repaired and sealed, ***MAXSEAL® FLEX*** will be applied with a fibre glass mesh ***DRIZORO® MESH 58*** of 40-60 g/m^2. Place the mesh on a first coat of ***MAXSEAL® FLEX***, with at least 20 cm wide of strip, and then apply a second coat of ***MAXSEAL® FLEX***.

Application conditions
Do not apply ***MAXSEAL® FLEX*** if rain, and/or water contact, humidity dew, etc. is expected within 24 h after the application.
Optimum application temperature is between 5-35°C. Do not apply below 5°C or if lower temperatures are expected within the following 24 hours after application. Do not apply on frozen or flooded surfaces.
In applications with high temperatures, strong wind and/or low relative humidity, dampen the substrate abundantly with water. Avoid direct exposure for mortar to the sun in extreme heat conditions.

Curing
Avoid quick drying of ***MAXSEAL® FLEX*** by keeping it moist for at least 24 hours after application, using polyethylene sheets or damp burlap. Do not apply curing agents.

Curing time required to put the product into service or to immerse it in water will depend on temperature and relative humidity conditions on site. Conditions in the range of 20°C and 50 % R.H. will require a minimum of 7 days to cover with ceramic tile, plaster or earth/gravel, and 14 days to ensure that the product has cured enough to be in permanent contact with water. Applications made at lower temperatures or sites without ventilation and high R.H. will require longer curing periods.
After curing, wash the surface of ***MAXSEAL® FLEX*** with water before putting into service in permanent contact with water.

Cleaning
All tools must be cleaned with water after use. Once it cures can only be removed by mechanical methods.

CONSUMPTION

MAXSEAL® FLEX is applied in two coats of 1,0-1,5 kg/m^2 approximately per coat, achieving a total consumption of 2,0-3,0 kg/m^2.
These figures may vary depending on porosity and substrate conditions, a preliminary test on-site will determine consumption exactly.

IMPORTANT INDICATIONS

- Do not add water, cement, admixtures, sand or any other compound that may affect the properties of the product.
- Minimum and maximum consumptions recommendations must be respected.

- To recover the workability of the material, proceed to remix it but in no case add more water. Do not knead more material than can be applied in 20-30 minutes.
- Do not apply the product over waterproofed, bituminous substrates or resins.
- In case of doubt related to the kind of water to be in contact with ***MAXSEAL® FLEX*** or other uses not specified in this Technical Bulletin, consult our Technical Department.

PACKAGING

MAXSEAL® FLEX is supplied in grey and white colour, both available in standard and smooth textures. Pigmented version ***MAXSEAL® FLEX DECOR*** is available in light colours by especial request.

COMPONENTS	Standard texture		Smooth texture	
	Set 35 kg	**Set 7 kg**	**Set 32 kg**	**Set 7 kg**
Component A	10 kg	2 kg	10 kg	2 kg
Component B	25 kg	5 kg	22 kg	5 kg

STORAGE

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

SAFETY AND HEALTH

Both components are non-toxic by themselves, but powder component is an abrasive compound. Avoid eye and skin contact for both components. Protective rubber gloves and safety goggles must be used to mix and apply them. In case of eye contact, rinse thoroughly with clean water but do not rub. In case of skin contact, wash affected areas with water and soap. If irritation persists, seek medical assistance.

Safety Data Sheet of ***MAXSEAL® FLEX*** is available 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. Mortar for protection of concrete. Coating (C). Principles / Methods. Protection against ingress with coating (Principle 1-PI / 1.3), Moisture control with coating (Principle 2-MC / 2.2) and Increasing resistivity by limiting moisture content with coating (Principle 8-IR / 8.2)		
General appearance and colour for component A	Milky white liquid	
General appearance and colour for component B	White/Grey powder	
Density for component A, (g/cm^3)	1,03 ± 0,05	
Density for component B, (g/cm^3)	1,35 ± 0,10	
Density for fresh mortar, (g/cm^3)	1,56 ± 0,10	
Application and curing conditions		
Minimum application temperature for substrate and ambient, (°C)	> 5	
Pot life at 20°C & 50 % R.H., (min)	30 – 40	
Minimum / Maximum waiting time between coats at 20°C & 50 % R.H., (h)	12 – 16 / 24	
Drying time at 20°C & 50 % R.H., (h)	24	
Curing time at 20°C & 50 % R.H., (d) - Mechanical load: covering with gravel, renders, plasters, tiles - Permanent immersion	 7 14	
Cured product characteristics		
Waterproofing maximum positive/direct water pressure, EN 12390-8 (bar)	10	
Waterproofing maximum negative/indirect water pressure, EN 12390-8 (bar)	3,5	
Permeability to water vapour, EN ISO 7783-1/-2. Classification V (g/m^2·day) / S_D (m)	Class I: Permeable to water vapour 6,37 / 3,29	
Permeability to water and capillary absorption, EN 1062-3. w (kg/m^2·h^{0,5})	0,01	
Permeability to CO_2, EN 1062-6. S_D (m)	545	
Resistance to freeze/thaw cycles, SS 137244. Scaling (kg/m^2)	Very good resistance / 0,03	
Resistance to sulphates, ASTM C-1012. Classification y expansion (%)	High resistance / 0,01	
Resistance to diffusion of chloride ions, ASTM C-1202. Classification	Very low ingress	
Tensile strength, UNE 53510 (MPa)	1,3 ± 0,1	
Elongation at break, UNE 53510 (%)	59 ± 5	
Bending test on 8 mm reinforcement, ASTM A 615. Elongation (%) / Result	20 / Without fissures	
Crack-bridging ability, EN 1062-7 (mm) Method A - ***MAXSEAL® FLEX*** - ***MAXSEAL® FLEX + DRIZORO® MESH 58***	 CLASS A3 (20°C) CLASS A4 (20°C)	
Adhesion on concrete at 28 days UNE-EN 1542 (MPa) ASTM D 4541 (MPa)	 ≥ 1,0 2,0	
Liquid applied water impermeable products for use beneath ceramic tiling bonded with adhesives Classification, UNE EN 14891	CM P O2	
Abrasion resistance (Taber test), ASTM D-4060. Wearing index (Abrading wheel: CS-17 & Load: 1 kg)	500 Cycles 0,26	1.000 Cycles 0,16
Suitability for contact with potable water, BS 6920	Suitable	
Consumption*		
Consumption per coat/total application, (kg/m^2)	1,0 - 1,5 / 2,0 - 3,0	

**Consumption may vary depending on substrate's characteristics and application method. Test on site before application in order to find out exact consumption.*

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.

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