

Reservoir Waterproofing with Polyurethane Membranes



MAXURETHANE[®] FLEX system for Reservoir Waterproofing



COMPANY PROFILE

DRIZORO® S.A.U. is a Spanish company established in 1977, beginning its activity as a manufacturer of chemical products for construction. Nowadays, the company is a leader on supplying speciality products and systems designed for waterproofing, concrete repair, flooring and decorative finishes.

Our **Headquarters** and Production Plant is based in **Madrid** (Torrejon de Ardoz) - Spain. This is also the base for all operations of the different departments; Production, Research & Development, Laboratory, Technical, Sales, Marketing and Administration.

COMMITMENT TO QUALITY AND ENVIRONMENT

Our strong commitment to Quality Control and the Environment has led us to establish an Integrated Quality and Environmental Management System. This is based on the ISO 9001:2015 and ISO 14001:2015 standards. This system was certified by *Bureau Veritas Quality International*.

COMMITMENT TO RESEARCH, DEVELOPMENT AND INNOVATION

Our strong commitment to Research and Development of both our product range and of human resources enables us to offer the market innovative systems with a high standard of quality whilst being mindful of environmental concerns. These developments are transferred into improvements to our products range. This is based on substantial market research, including on-site experience under the most adverse worldwide conditions, combined with laboratory studies.

TECHNICAL ASSISTANCE

Our Technical Department and Sales Network comprises of highly qualified professionals with wide experience and trained in the construction industry. They provide personalized advice to our clients during all phases of construction in order to specify the most suitable system of products.



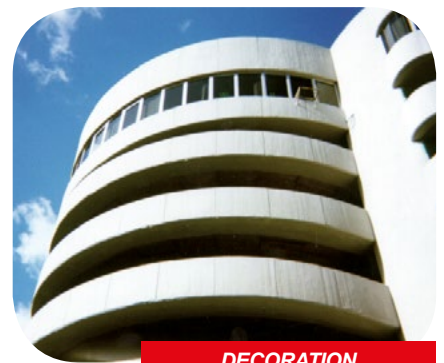
DRIZORO® TECHNICAL SOLUTIONS



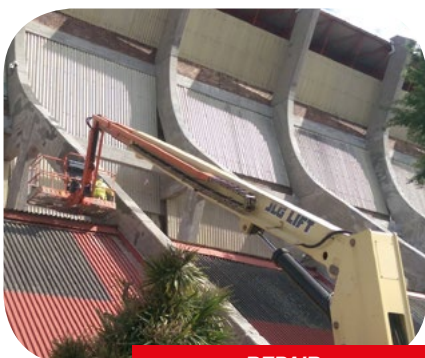
WATERPROOFING



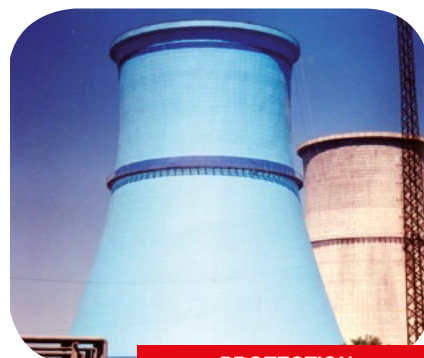
STRENGTHENING



DECORATION



REPAIR



PROTECTION

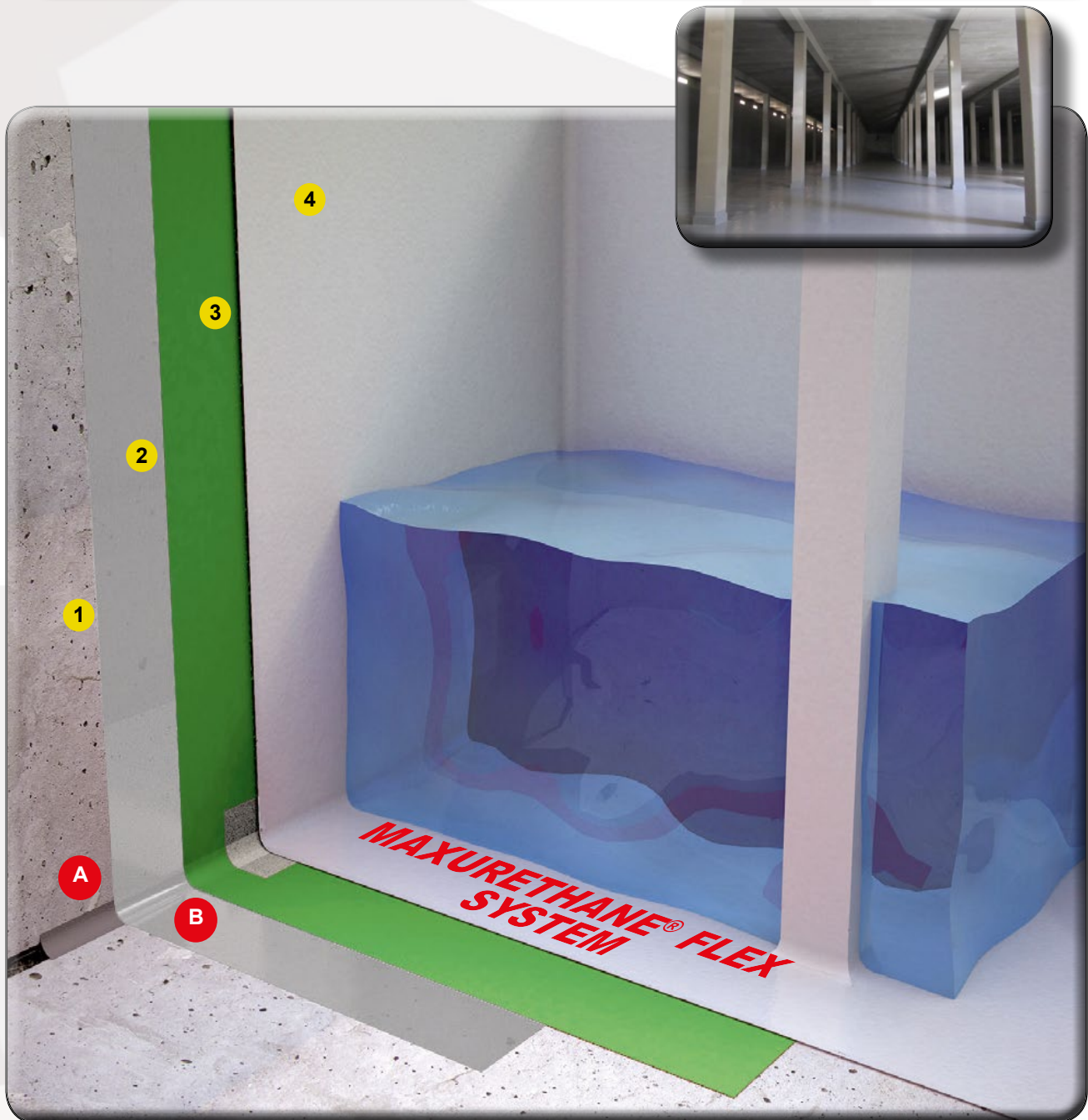


OTHER USES

Potable Water Reservoirs

MAXURETHANE® FLEX System

MAXURETHANE® FLEX is a two-component, solvent-free, flexible polyurethane membrane suitable for protection and waterproofing of concrete and metal substrates in drinking water reservoirs, water channels, pipelines, chemical reservoirs, and applications for food industry.



TREATMENT OF CORNERS

- A.- Concave corner: **MAXREST®**
B.- Primer: **MAXEPOX® PRIMER -W** and 1st coat of **MAXURETHANE® FLEX** reinforced with **DRIZORO® VEIL**

WATERPROOFING SYSTEM

- 1- Surface preparation
- 2- Primer: **MAXEPOX® PRIMER -W**
- 3- 1st coat of **MAXURETHANE® FLEX**
- 4- 2nd coat of **MAXURETHANE® FLEX**

Application Procedure



1 *Surface preparation:* Concrete must be fully cured and structurally sound. Before applying **MAXURETHANE® FLEX**, remove any unbounded material and clean the surface from any material or dirtiness that may affect the adhesion of the waterproofing system. Patch any surface damages such as defects, cavities, honeycombs, peeling with a suitable structural repair mortar: **MAXREST®** / **MAXRITE® -F**



Priming: Apply on the dry and clean surface the **MAXEPOX® PRIMER -W** water-based epoxy primer using a brush, roller or spraying means with a consumption of 0,25-0,3 kg/m².

Waterproofing: Once primer is completely cured, i.e. 12-24 hours, apply two coats of **MAXURETHANE® FLEX** using a brush, roller or spraying means with a consumption of 0,3-0,4 kg/m² per coat, and in perpendicular direction each other.



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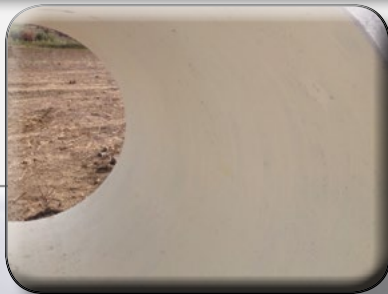
Curing: Observe a curing time of 7 days at 20°C and 50% R.H. for permanent immersion conditions.

Advantages of MAXURETHANE® FLEX System

- Approved for contact with drinking water. RD 140/2003
- Approved for contact with food. European Regulation No. 10/2011
- Great flexibility and mechanical properties, cracks bridging and withstands thermal movements and vibrations of the substrate.
- Continuous membrane without overlaps, fitting to the surface geometry.
- High abrasion and wear resistance. Long lasting protection and no maintenance in permanent immersion conditions.
- Very good chemical resistance against soil salts, sea water, sewage waters, oils, petrols, diluted acid and alkalis, etc.
- Easy application by brush, roller or airless equipment.
- Non-toxic, solvent-free and non-flammable. Suitable for poor ventilated working areas.

Chemical protection

MAXURETHANE® FLEX is a waterproofing and protective PU liquid applied membrane with excellent chemical resistance to alkalis, petroleum derivatives, acids, salts and maintenance products, and it is a suitable option for high performance industrial applications (immersion and/or splash and spillage conditions, occasional or intermittent contact) in: anaerobic tanks, digestors, etc... (wastewater), and chemical protection in silos, chemical storage bunds, processing units, etc...



MAXURETHANE® FLEX has been tested according to different standards for chemical resistance:

- EN 13529. - Determination of resistance to severe chemical attack
- ISO 15105-1. - Determination of methane transmission rate
- ISO 1431-1. - Resistance to ozone cracking

Food Industry

MAXURETHANE® FLEX is a membrane with technical approval to be used in food processing and preservation. It has been tested according to different standards/regulations:

- Commission Regulation 10/2011
- Council Directive 98/83/EC

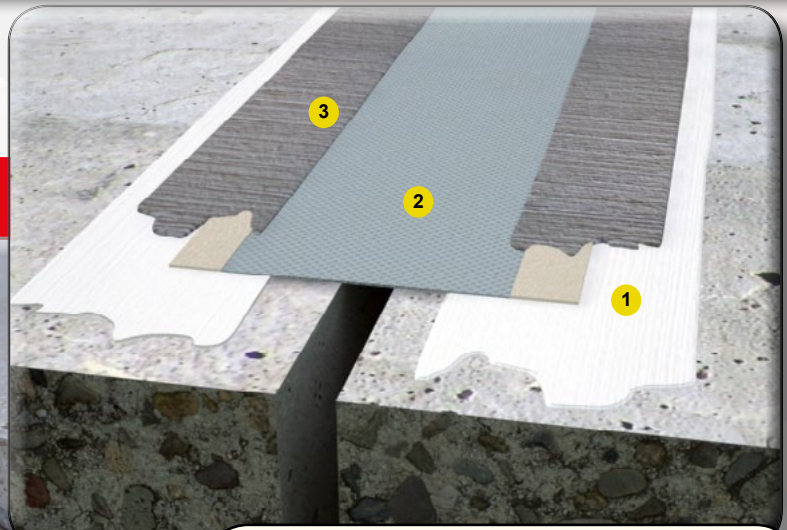
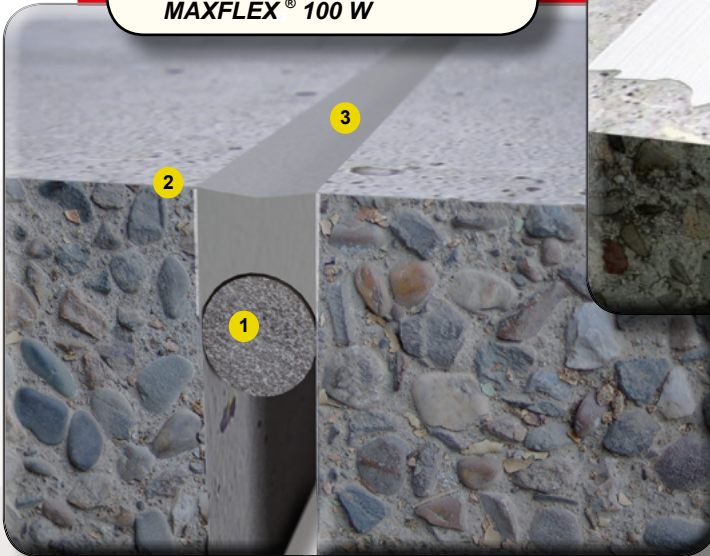


Application Details

1 Treatment of joints

Joints subject to movements:

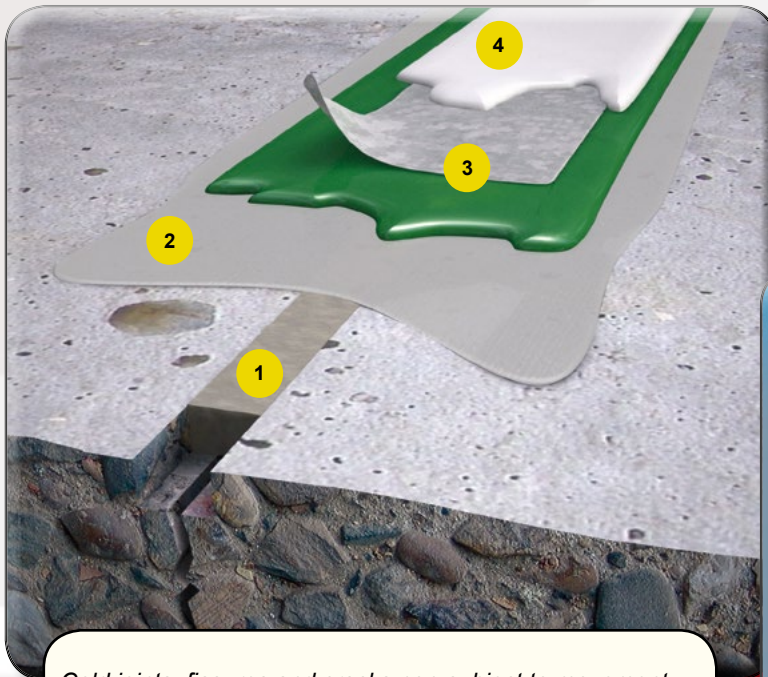
- 1.- Backing rod: **MAXCEL®**
- 2.- Primer: **PRIMER 1®**
- 3.- Elastomeric PU sealant: **MAXFLEX® 100 W**



Big expansion joints:

- 1.- Adhesive: **MAXSEAL® FLEX / MAXEPOX® JOINT**
- 2.- Elastomeric strip: **MAXFLEX® XJS**
- 3.- Adhesive: **MAXSEAL® FLEX / MAXEPOX® JOINT**

2 Treatment of outstanding points

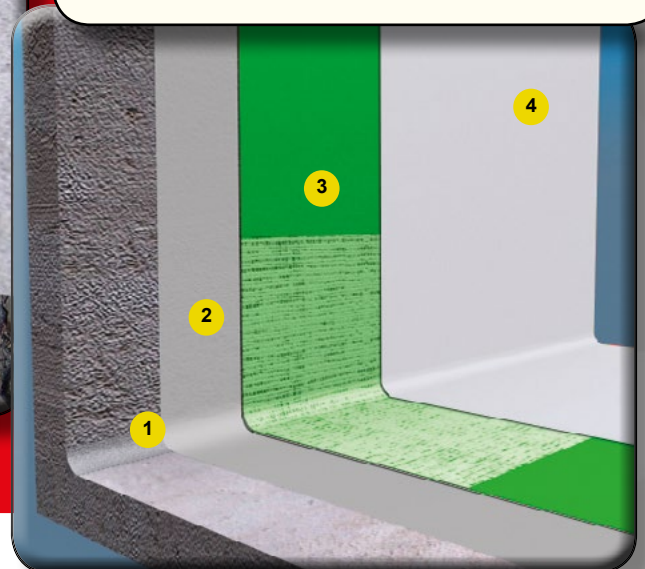


Wall-slab corners:

- 1.- Repair material for groove: **MAXREST® / MAXJOINT® ELASTIC**
- 2.- Primer: **MAXEPOX® PRIMER -W**
- 3.- 1st coat of **MAXURETHANE® FLEX** reinforced with **DRIZORO® VEIL**
- 4.- 2nd coat of **MAXURETHANE® FLEX**

Cold joints, fissures and cracks non-subject to movement:

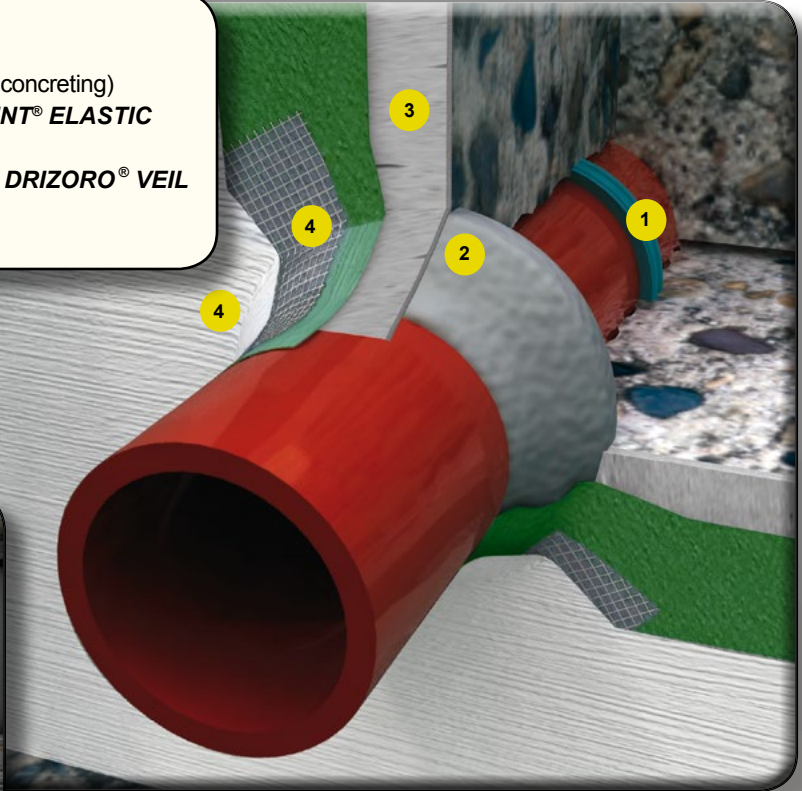
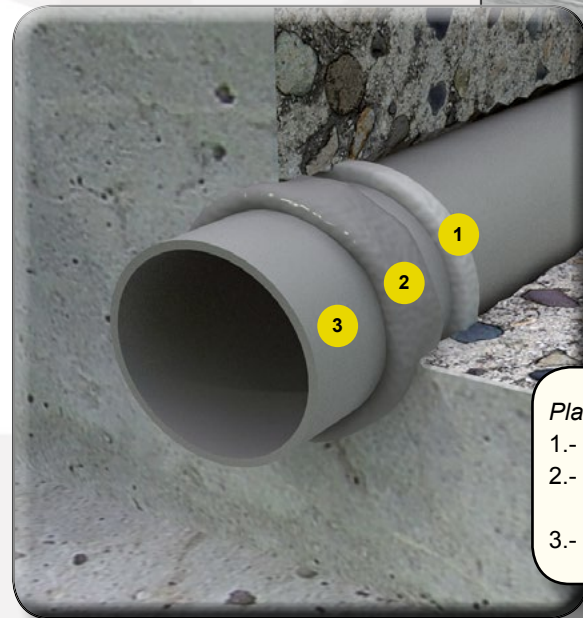
- 1.- Repair material: **MAXREST® / MAXJOINT® ELASTIC**
- 2.- Primer: **MAXEPOX® PRIMER -W**
- 3.- 1st coat of **MAXURETHANE® FLEX** reinforced with **DRIZORO® VEIL**
- 4.- 2nd coat of **MAXURETHANE® FLEX**



3 Treatment of Passing Pipes

Metallic pipes:

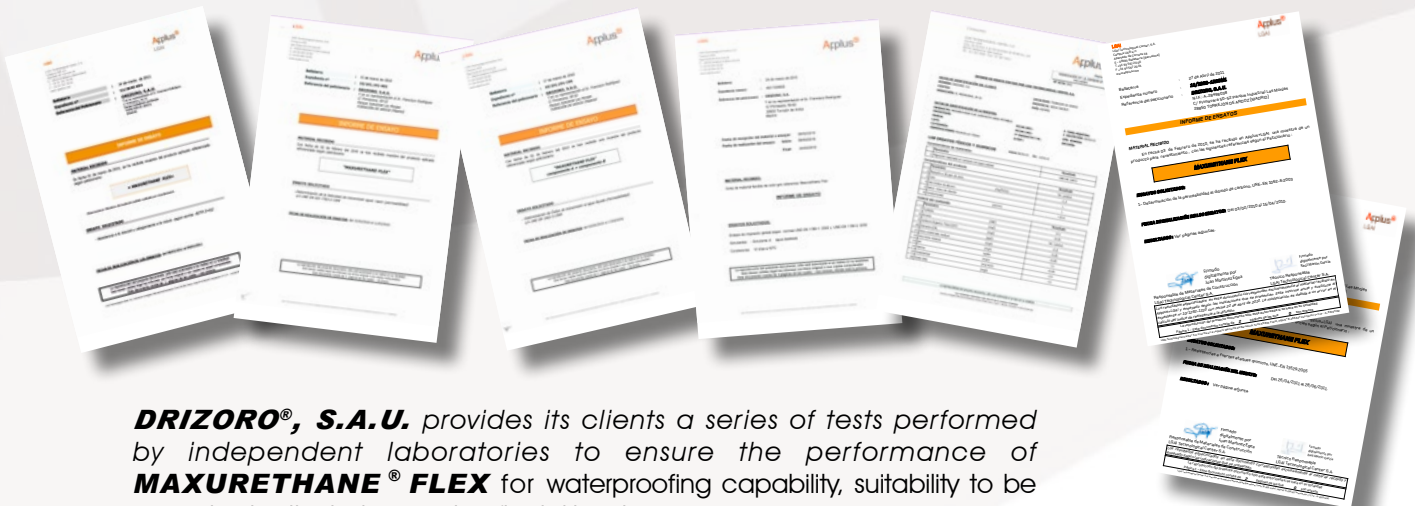
- 1.- Water swelling profile: **MAXJOINT® W SEAL** (before concreting)
- 2.- Elastomeric sealant: **MAXFLEX® 100 W / MAXJOINT® ELASTIC**
- 3.- Primer: **MAXEPOX® PRIMER -W**
- 4.- 1st coat of **MAXURETHANE® FLEX** reinforced with **DRIZORO® VEIL**
- 5.- 2nd coat of **MAXURETHANE® FLEX**



Plastic pipes of small diameter:

- 1.- Water swelling sealant: **LEAKMASTER®**
- 2.- Elastomeric sealant: **MAXFLEX® 100 W / MAXJOINT® ELASTIC**
- 3.- Pipe

Performance Tests



DRIZORO®, S.A.U. provides its clients a series of tests performed by independent laboratories to ensure the performance of **MAXURETHANE® FLEX** for waterproofing capability, suitability to be in contact with drinking water, flexibility, etc...

Complementary products

| DESCRIPTION | CONSUMPTION | PACKAGING | APPLICATION FIELDS |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MAXURETHANE® FLEX High-performance, 100% solid and solvent free, two-component, flexible aromatic polyurethane coating for waterproofing and protection of concrete. | 0,6 - 0,8 kg/m ² | 25 kg pre-weight sets | Waterproofing of potable water tanks, food industry uses, and high chemical protection. Waterproofing of swimming-pools, fountains, water channels, pipelines, digesters, chemical reservoirs. |
| MAXEPOX® PRIMER -W Water-based epoxy primer for epoxy or polyurethane systems | 0,2 - 0,3 kg/m ² | 10 kg and 20 kg pre-weight sets | Primer for epoxy or polyurethane waterproofing systems on concrete or mortars with certain level of humidity. |
| MAXPLUG® Quick-setting hydraulic mortar for stopping of water leaks under hydrostatic pressure. | 1,67 kg/l | 25 kg drums and 5 kg cans | Stopping of active water leaks with high hydrostatic pressure in above or below grade jobs: Basements, tunnels, foundations, reservoirs, tanks. Sealing of concave corners or joints in waterproofing jobs. Below grade water applications. Anchoring of bolts and other accessories. |
| MAXREST® Non-shrink, thixotropic, fast-setting, structural repair mortar. | 1,7 kg/m ² and mm of thickness | 25 kg bags and drums, 5 kg cans | Repair and restoration of concrete structures and façades; Cornices, corbels, lintels, raincaps, decorative elements, etc and cracks, fissures and honeycombs. Filling of joints previous to waterproofing works. Restoration of damaged lines and shapes of elements. |
| MAXRITE® -F Non-shrink, thixotropic, normal-setting, microsilica-enhanced, polymer-modified, fiber-reinforced structural repair mortar. | 1,9 kg/m ² and mm of thickness | 25 kg bags | Restoration of concrete structural elements of recovering the original shape and function. Reinforcement of concrete with increase or restoration of the bearing capacity by mortar screed. Restoration of the passivation of reinforcement. |
| MAXEPOX® JOINT Epoxy mortar with high mechanical and chemical properties for grouting of ceramic at wall and floor. | 0,7 - 0,8 kg/m lineal meter of joint | Set de 10 kg | Adhesive placement of the elastic band MAXFLEX® XJS in sealing joints. |
| MAXFLEX® 100 W High-performance, modified-polyurethane sealant for permanent immersion joints and suitable for drinking water. | 100 ml/m per 10x10 mm joint | Cartridges 300 ml and 600 ml bags | Sealing of joints and cracks in contact with potable water in storage tanks, channels, water treatment plants, etc. Expansion joints in different construction elements, pre-cast concrete, mortars, brickworks, etc. Sealing of joints in façades, curtain walls, windows and door outside frames, etc. Joints in contact with chemicals in storage bunds, chemical tanks, sewage treatment plants, etc |
| MAXJOINT® ELASTIC Elastic, two component cement-based, repair and sealing mortar for joints and cracks in concrete and masonry. Suitable for drinking water | 0,13 kg/m per 10x10 mm joint | 4 and 10 kg pre-weighed sets | Sealing of expansion joints in movement between concrete pre-cast structures. Joints in permanent immersion in pipelines, water reservoirs, water treatment plants, etc. Vertical joints in façades and building construction. Restoration of active cracks in concrete and masonry. Pointing mortar on substrates subject to movement. |
| MAXFLEX® XJS Elastic sealing system composed of TPE with lateral geotextile fleece edges suitable for expansion joints corners or and cracks | ---- | Rolls 20, 30 and 50 m, depending on version | Sealing of expansion joints in movement between concrete pre-cast structures. Joints in permanent immersion in pipelines, water reservoirs, water treatment plants, etc. Vertical joints in façades and building construction. Restoration of active cracks in concrete and masonry. Pointing mortar on substrates subject to movement. |
| MAXJOINT® W SEAL Elastic and water swelling profile made of pre-formed hydrophilic resins that increase in volume up to 4 times when it is in direct contact with water for sealing of joints and cracks in concrete and masonry. | ---- | Rolls | Sealing of concrete construction joints subject to permanent water immersion in reservoirs, dams, channels, etc. Sealing of joints between pre-cast elements: tunnel shields, panels, sections, boxes, pipes, etc. Repair and sealing of fissures and cracks subject to continuous presence of water. Sealing of walls, joints and underground structures such as foundations, tunnels, galleries, etc. Sealing of metal or concrete pipes through walls. |
| LEAKMASTER® Moisture-cured, one-component water-swelling sealant with excellent elasticity for use in all kind of construction joints and cracks. | ---- | Cartridges 320 ml | Sealing construction joints and wall/slab joints subject to permanent water immersion. Sealing joints in heavy or light pre-fabricated panels, pre-cast units such as box culvert, utility vaults, etc. Excellent sealing of joints in pipe penetrations, form ties, around rebars. H-section steel beams and other waterproofing works where it is difficult or impossible to use pre-formed water-swelling profiles. |



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