

# CRYSTALLINE SURFACE WATERPROOFING

therglassconcrete®
crystalline waterproofing

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About us?

The Therglass® Concrete Company, is a company belonging to the Ibercal® International Business group, created to develop and market solutions for the consolidation, waterproofing and comprehensive protection of concrete and all types of mineral surfaces.

The Therglass® Concrete Company, has a human team with extensive experience in the chemical industry of contruction products and systems for civil engineering.

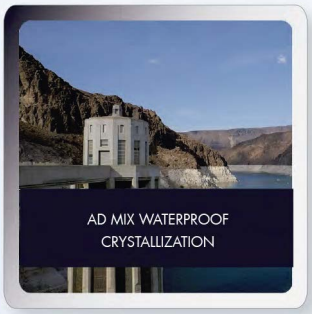
The products developed by Therglass® are manufactured exclusively by the Ibercal® Group, in its fully automated plant for special dry mortars in Almendralejo (Spain).

In addition to the headquarters and the research laboratory, from this location we manage the global distribution of our products and systems to more than 15 countries.

The Ibercal® Group exchanges technology with the most important groups andcompanies in the world, for the development, acquisition or transfer of cutting-edge systems, patents and applications.

That is why, The Therglass® Concrete Company, has the authentic and genuinecrystalline technology, Therglass® Crystalline Waterproofing, for the waterproofing of systems that contain cement, as well as mineral consolidants based on lithium nano-silicates. and sodium (Therglass® Concrete Inner) for catalyzed nanocrystallization as protection for mineral surfaces.

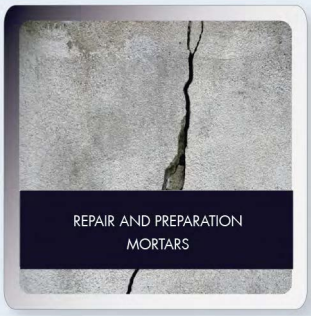
## PRODUCT RANGE

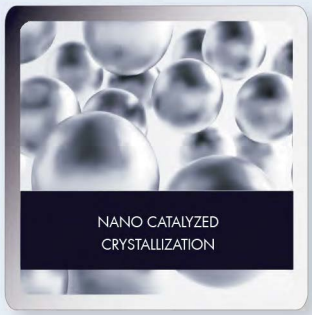


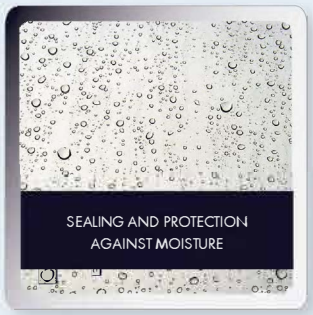


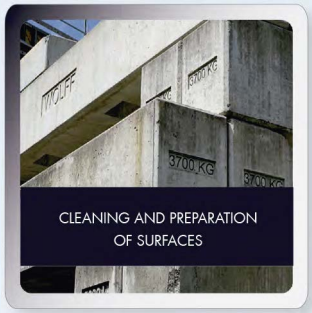








**Evolution of the crystallization process, in a concrete block treated with Therglass® Crystalline Waterproofing**

Authentic crystalline technology creates visible crystals of the Calcium Silicate Hydrate (CSH) type.





# SURFACE CRYSTALLINE WATERPROOFING

## USE AND APPLICATION GUIDE

| PRODUCT | TherGlass® Concrete PLUG | TherGlass® Concrete BARRIER COAT | TherGlass® Concrete BASE COAT | TherGlass® Concrete TOP COAT |
|---|---|---|---|---|
| **TYPE** | Fast sealing cement for leaks or waterways. | Quick-setting waterproofing mortar, specially designed to make plasters and / or waterproof membranes, as well as repairers of cracks, holes and joints in concrete. | Composed in the form of a dry mortar, to be applied as a crystalline chemical treatment for the repair, waterproofing and protection of existing concretes. | Compound in the form of dry mortar, to be applied as a crystalline chemical treatment for the repair, waterproofing and protection of existing concretes. |
| **FUNCTION** | It cuts water leaks even under pressure, in drinking water tanks, dikes, underground structures, basements, elevator shafts, etc. | Immediate and watertight sealing of minor seepage or water leaks flowing through pores and cracks in concrete or masonry. | Chemical treatment by molecular diffusion for the repair, waterproofing and protection of existing concretes. | It provides a chemical reinforcement to the Base Coat, as well as a more resistant and decorative finish to the Waterproofing system. |
| **RECOMENDED USES** | As a waterway plug and leak sealant on concrete structures, prior to using the repair and treatment of cold joints Therglass Joint System. (T.J.S) | Regularization plasters, and waterproof membranes, as well as repair of cracks, holes and joints in concrete.<br>As the first layer to apply on wet surfaces that show "sweating or tearing" and prior to the application of Base Coat<br>Watertight filler in sealing construction joints, or for the repair of cracks with filtration, defective joints and other construction defects, as well as in the treatment of cold joints (T.J.S) Therglass Joint System. | As a second layer on the base already prepared with Therglass Concrete Barrier Coat, in the repair system for concrete structures that present water leaks and in the treatment of cold joints (T.J.S) Therglass Joint System. | As a third layer on the base already prepared with Therglass Concrete Base Coat, in the repair system for concrete structures that present water leaks and in the treatment of cold joints (T.J.S) Therglass Joint System<br>Protective and waterproof layer of concrete as an alternative to the application of bituminous emulsions. |
| **PROPERTIES** | • Fast setting for 2 to 3 minutes at a temperature of 21°C.<br>• Slightly expansive during setting.<br>• Immediately seals leaks and leaks of pressurized water.<br>• Excellent mechanical and hydrostatic pressure resistances, either positive or negative.<br>• Durability similar to that of concrete. and that of the masonry to which it is applied.<br>• Does not contain metallic elements.<br>• Does not rust or deteriorate.<br>• Protects armor against corrosion.<br>• Can be used in underwater applications.<br>• Suitable for use in contact with drinking water.<br>• Free of chlorides and solvents. | • Especially indicated to stop superficial water leaks, since it seals them immediately.<br>• Applicable on wet surfaces with "sweating"<br>• Waterproofs both positive and negative pressure.<br>• Indicated for concrete and masonry constructions.<br>• Protects armor against corrosion<br>• Compressive strength higher than that of the concrete itself.<br>• Supports wear or superficial abrasion.<br>• Permeable to water vapor<br>• Suitable for use in contact with drinking water. | • Penetration into the support by chemical diffusion.<br>• Stops water seepage into concrete at both negative and positive pressure.<br>• Protects reinforcing armor against corrosion.<br>• Total and permanent waterproofing, becomes an integral part of the concrete.<br>• Waterproof protection increases over time, thanks to its Hydrophilic-Catalytic technology.<br>• Provides concrete with excellent resistance to attack by sulfates and chlorides.<br>• It is not affected by wear or superficial abrasion.<br>• Excellent resistance to hydrostatic pressure at both positive and negative pressure.<br>• Suitable for use in contact with drinking water.<br>• Fully substitute for conventional waterproofing systems. | • Penetration into the support by chemical diffusion to chemically reinforce the previous repair layers.<br>• Protects reinforcing armor against corrosion.<br>• Total and permanent waterproofing, becomes an integral part of the concrete.<br>• Provides concrete with excellent resistance to attack by sulfates and chlorides.<br>• It is not affected by wear or superficial abrasion.<br>• Good resistance to hydrostatic pressure at both positive and negative pressure.<br>• Suitable for use in contact with drinking water.<br>• Possibility of being made in any color.<br>• Fully substitute for conventional waterproofing systems. |
| **COMMON APPLICATIONS** | • Stops the active flow of water through fissures, cracks, or defects in the substrate.<br>• Repairs fixing holes for concreting and filling of ant hills or holes in the concrete.<br>• Seals leaks in construction joints and around joints with pipes | • Brick factories, either ceramic or concrete<br>• Hydraulic structures, docks, tunnel bridges and mining.<br>• Basements and parking lots.<br>• Precast concrete elements, screen walls, concrete slabs or screeds.<br>• Gunite concrete (ShotCrete).<br>• Pools, aquariums, treatment and / or desalination stations, channels, aqueducts and drinking water tanks.<br>• Elevator shafts.<br>• Cold concrete construction joints. | • Brick or concrete block factories<br>• Hydraulic structures, docks, tunnel bridges and mining.<br>• Basements and parking lots.<br>• Precast concrete elements, screen walls, concrete slabs or screeds.<br>• Gunite concrete (ShotCrete).<br>• Pools, aquariums, treatment and / or desalination stations, channels, aqueducts and drinking water tanks.<br>• Elevator shafts.<br>• Cold concrete construction joints. | • Brick or concrete block factories<br>• Hydraulic structures, docks, tunnel bridges and mining.<br>• Basements and parking lots<br>• Screen walls, slabs or concrete screeds.<br>• Precast concrete elements.<br>• Shotcrete concrete (ShotCrete)<br>• Pools, aquariums, treatment and / or desalination stations, channels, aqueducts and drinking water tanks.<br>• Elevator shafts |
| **BACKING** | On supports moistened to saturation without puddling | On substrates moistened to saturation without puddling, once the water path and the oozing of moisture have been sealed. | On the base already prepared with BARRIER COAT, or on new and healthy supports, without holes, fissures or cracks. In both cases, the support will be previously moistened to saturation without puddling. | On the base already prepared with BASE COAT or on new and healthy supports, without holes, fissures or cracks. In both cases, the support will be previously moistened to saturation without puddling |
| **APPLICATION** | Directly on the waterway in the form of putty or as a Dry Pack of plaster, on supports in a state of oozing moisture. | As a plastic "Dry Pack" mortar to apply as a thin layer plaster or as a "Slurry" dense grout | As a plastic "Dry Pack" mortar to apply as a thin layer plaster or as a "Slurry" dense grout | As dense slurry type grout |
| **MIXING DOSAGES** | Depending on the application | Dry Pack or Dense Mortar 4: 1<br>Slurry or Dense Grout 5: 2 | Dry Pack or Dense Mortar 4: 1<br>Slurry or Dense Grout 5: 2 | Slurry or Dense Grout 5: 2 |
| | | (powder volume: water ratios) | | |
| **CONSUMPTION** | Depending on the dosage | Under normal surface conditions, the yield per layer is 500 to 750 gr / $m^2$.<br>For joint filling in the (T.J.S.) TherGlass Joint System,<br>2 kg of TherGlass Concrete® BARRIER COAT, fill approx. 1 liter | 1 kg / $m^2$ and mm thickness. | From 500 to 800 gr / $m^2$ |
| **Micro-crack self-sealing** | PND | PND | Seals and waterproofs fissures up to 0.7 mm. | Seals and waterproofs fissures up to 0.4 mm. |
| **Hydrostatic pressure resistance** | PND | PND | 140 m.c.a (at positive and negative pressure) | 50 m.c.a (at positive and negative pressure) |
| **Penetration into existing concrete** | PND | 2 mm/month | 10 mm/month | 5 mm/month |
| **OBSERVATIONS** | TherGlass® products and systems are exclusively for professional use and are guaranteed against any manufacturing defect. Combined use with materials from other brands may or may not affect the mechanical, physical and aesthetic properties of our products. | | | |

# THERGLASS CRYSTALLINE WATERPROFING TECHNOLOGY

## WHAT IS THERGLASS® CRYSTALLINE WATERPROOFING?

A deep knowledge of concrete chemistry and its physical structure was necessary for the development of Therglass® Crystalline Waterproofing technology.

A conventional concrete matrix has a multitude of microscopic cavities. The pores and capillaries form a natural part of its mass and are interconnected tunnels that allow the passage of water and other liquids.

TherGlass® Concrete's line of waterproofing products uses an exclusive and proprietary, mixture of active chemical ingredients, which penetrate the interior of the concrete mass, filling in pores, capillaries and fissures, creating a permanent and definitive solution that waterproofs concrete for life.

## HOW DOES THERGLASS® CRYSTALLINE WATERPROOFING WORK WHEN APPLIED TO EXISTING STRUCTURES?

TherGlass® Concrete reactive additives use water as a migration medium to penetrate the interior of concrete capillaries.

Applying TherGlass® Concrete crystalline waterproofing to existing concrete surfaces causes a process called molecular diffusion. This process is based on the displacement of the molecules following the concentration gradient, that is, the molecules move from the medium where they are in greater concentration (Therglass mortar), to the medium where it does not exist or contains less concentration (water).

When concrete is saturated with water before applying the crystalline waterproofing, a low chemical content solution is being applied. When applying TherGlass® Concrete crystalline waterproofing on wet concrete, a high chemical content solution is created on the surface which triggers the molecular diffusion process. The chemical agents of the crystalline waterproofing (the solution with the highest concentration) migrate through the water (the solution with the lowest concentration) penetrating the wet medium, until both solutions are balanced.

TherGlass® Concrete's active geo-polymers dispers inside the substrate, depositing CSH catalysts that react with the existing humidity, as well as with the by-products resulting from the hydration of the cement and its non-hydrated particles, to cause a crystalline catalytic reaction.

This catalytic reaction generates the formation of millions of insoluble crystals of Hydrated Calcium Silicates (CSH), inside the concrete, which strengthens and creates a permanent solution that waterproofs the concrete for life, since it seals Definitively pores, capillaries, cracks and fissures, preventing the penetration of water and other liquids from any direction, even in conditions of high hydrostatic pressure.

TherGlass® Concrete will become an active part of the concrete to which it has been applied, and will act continuously and for life in the presence of water or moisture creating new crystalline formations. If cracks appear during the life of the concrete, TherGlass® will activate in the presence of moisture and seal the cracks. TherGlass® chrystals can withstand very high hydrostatic pressures.

TherGlass® is completely harmless when it comes to protecting structures that contain drinking water and during its installation it does not generate vapors or residues that are harmful to the environment or people's health.

## PROPERTIES

*TOTAL AND ACTIVE WATERPROOFING*

Stops water seepage in concrete subject to hydrostatic pressure, and waterproofs completely, as it becomes an integral part of the concrete. Maintains the permeable properties.

*IMPROVEMENT OF CHEMICAL RESISTANCE*

It gives concrete an excellent resistance to attacks by sulfates, chlorides and acids, it controls leaching and protects iron reinforcements against corrosion.

*GREATER MECHANICAL STRENGTH*

It provides self-sealing properties of fissures, minimizes cracking and increases considerably mechanical strength, being able to double compression strength.

*NATURAL AND SAFE PRODUCT*

It is a natural and harmless geo-polymer, does not contain solvents, is non-toxic, or flammable and is VOC-free. It is suitable for use in contact with drinking water.

Therglass® Concrete
PLUG




Therglass® Concrete
BARRIER COAT




Therglass® Concrete
BASE COAT




Therglass® Concrete
TOP COAT

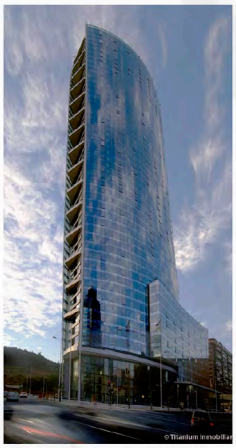


# REFERENCE PROJECTS



**Project:** Torre Titanium La Portada.
**Location:** Santiago de Chile (Chile).
**Work:** Treatment of cold joints of wall-wall and slab-wall concrete.
**Product used:** TherGlass Concrete Plug, Barrier Coat, Base Coat and Top Coat.
**Owner:** Titanium Real Estate
**Builder / Installer / Supplier:** Semarco, S.A - Covflex.
**Year:** 2015.







**Project:** JAPDEVA Port Authority.
**Location:** Puerto Limón (Costa Rica).
**Work:** Waterproofing of the deck of the pier 3 and cold concreting joints.
**Product used:** TherGlass Concrete Barrier Coat, Base Coat and Top Coat.
**Owner:** JAPDEVA.
**Builder / Applicator / Supplier:** Hig Tech Industrial.
**Year:** 2015.







**Project:** Hospital Universitario la Fé.
**Location:** Valencia.
**Works:** Waterproofing of the screen wall, concrete screed, fire water tank and joint treatment.
**Product used:** TherGlass Concrete Admix HD 700, Plug, Barrier Coat, Base Coat and Top Coat.
**Owner:** Ministry of Health of the Valencian Community.
**Builder / Installer / Supplier:** Taladros y Perforaciones Ligeros, S.L. / Construquín, S.L.
**Year:** 2014.




CHEMICAL RESISTANCE

HIGH MECHANICAL STRENGTH

100% ECOLOGICAL SUSTAINABLE PRODUCTS

WATERPROOF BREATHABLE

therglassconcrete®
crystalline waterproofing

CE

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