

# SUPERSHIELD

**CRYSTALLINE MASS WATERPROOFING COMPOUNDS  
FOR CONCRETE AND COMPLEMENTARY PRODUCTS  
FOR WATERPROOFING STRUCTURES  
UNDER AND ABOVE GROUND**



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## COMPANY PROFILE

# Supershield Global

Supershield was founded in 1998 by a group of chemists who developed the DPC (Deep Penetrating Crystalline) crystalline technology for waterproofing concrete.

In 2000 Supershield built the first manufacturing plant, in southern India, in the city of Coimbatore in Tamil Nadu.

The continuous research and development of Supershield has enabled the company to develop over time highly innovative products for waterproofing and protecting concrete and other construction materials.

Supershield also cooperates with external laboratories and academic institutions for the research and trial tests of its products.

Supershield Global is represented in India, Asia and UAE.







## Supershield Italy

In 2011 Supershield Global decided to enter the European market by establishing Supershield Italy S.r.l., a branch for the distribution of its waterproofing products in Europe in the mediterranean countries, Middle East and West Africa.

Supershield Italy has built a network of distributors and applicators nationally and has initiated local distributors in other European countries.

In 2013 Supershield established in Abidjan (Ivory Coast)

Supershield West Africa S.r.l., managed and coordinated by Supershield Italy, with the aim of establishing itself in key African markets.

Supershield Italy in the past years has established distributors and partnerships in Spain, Turkey, Lebanon, Qatar and other countries.

In recent years Supershield Italy has supplied and applied its products in several major projects, including Expo 2015.



## PRODUCTION AND QUALITY CONTROL

Supershield complies with certification standard ISO 9001 for quality control. The checks on the process of design and production of the products distributed in the European market are carried out according to EC regulations and the CPR (Construction Products Regulation) standard. The certifying body for the EC marking and for the standard CPR is Bureau Veritas, operative in 150 countries worldwide.

The distribution of Supershield products takes place through five main logistics centres: Coimbatore (India) for Asia, Turin (Italy) for Europe, Abidjan (Ivory Coast) for Africa, San Jose, California (USA) and Fortaleza, Ceará (Brazil) for the Americas.







- ✓ Material and Labor Reduction
- ✓ Recycling Concrete
- ✓ Permanent Solution and build to last
- ✓ No Volatile Organic Compounds (VOC's)
- ✓ Energy Efficient

## ENVIRONMENTAL CARE

For Supershield, respect for the environment is an integral part of the way we do business. The research and development department of Supershield exclusively studies and develops products with minimum to no environmental impact.

### **Supershield products do not contain VOCs.**

The use of components is designed to take advantage of the chemistry of the materials in which they are used, to avoid pollution of the environment. Most products are water-based. Supershield considers sustainability as a long-term strategic approach, aiming to find a balance between commercial opportunities and social, economic and environmental responsibility. Striving toward increasingly efficient technologies is accomplished with respect for nature and safeguarding and improving people's lives. Thanks to this responsible approach, the use of **Supershield products and systems enables the acquisition of credits for the LEED system** (Leadership in Energy and Environmental Design), aimed at improving environmental awareness in construction.





## TRAINING AND TECHNICAL ASSISTANCE

Supershield is dedicated to ensuring the skills and technical training of its salesmen and distributors, periodically leading technical courses on the use of its products and systems. In order to gain certification, distributors and applicators of Supershield products and systems are trained both in the classroom and in the field.

They contribute to the success of the products by providing advice for waterproofing solutions during the project phase and for the correct application at the construction site, as well as 24 hr customer service.

Supershield Italy offers an Online Technical Assistance service (ATO) to its customers and to construction professionals. It suggests solutions for waterproofing and protecting structures and helps to select the best one, providing valuable assistance to businesses and specialised workers in the field.

**Supershield technicians are always available to provide customers with assistance on construction sites, solving problems as they arise, in real-time.**



**Supershield technology**





## Supershield product range

Supershield designs and manufactures a complete range of waterproofing products, including additives, mortars, plasters and paints, in addition to complementary products useful to waterproof structures safely and effectively .

Thanks to the high level of competence of its Research and Development department, Supershield has chosen a strategy of market approach that relies on the production of products that are:

- ecological
- innovative
- with high technological content
- of high quality

This strategic choice, which differs from that of many competitors, has allowed Supershield to establish itself in a niche market as a manufacturer of innovative and technological products able solve problems of waterproofing that others cannot.

# DPC crystalline technology

One of the characteristics of concrete is the formation of pores and capillaries that are formed during the hydration phase and that are part of every mass of this material.

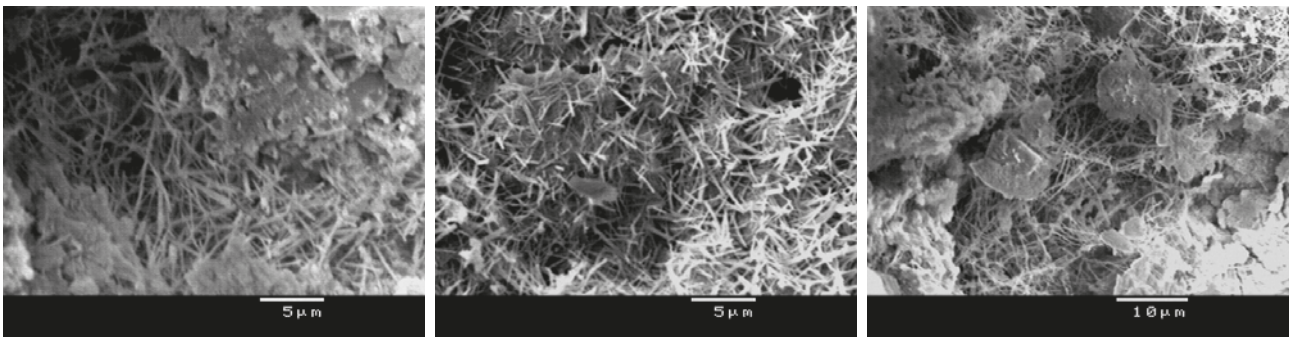
Pores and capillaries make concrete permeable, allowing the passage of water, which also carries the external chemical agents that over time cause the oxidation of bars and the deterioration of concrete.

**DPC (Deep Penetrating Capillary) crystalline technology** is a waterproofing chemical treatment that, when added to the concrete mix as an additive or used as a coating, increases the durability of concrete by sealing pores, capillaries and micro-fractures with a needle-like crystalline formation that is insoluble and highly resistant.

Supershield's active components react chemically with the co-products of cement hydration, forming a crystalline structure that becomes part of the concrete mass, making it impervious to moisture and liquids entering from every direction, but allowing the passage of water vapour and allowing the structure to breathe.

The crystalline structure is established when there is moisture. Also in time, if settlement cracks form, new water trying to enter concrete triggers a new crystal growth process which seals cracks of up to 0.4 mm.

The crystalline structures, being formed inside the concrete mass and not exposed to the surface, cannot deteriorate, whereas membranes and other superficial waterproof coatings can easily be damaged. Simply put, the **Supershield DPC system waterproofs and protects concrete permanently, therefore increasing its durability.**





# The benefits to using crystalline technology for waterproofing concrete

The SUPERSHIELD crystalline technology has many advantages over other traditional technologies for waterproofing both new or existing concrete.

## NEW CONCRETE

### Benefits of Supershield Admix:

- waterproofs concrete mass and not just the surface or superficial layer
- is permanent, unlike other systems that have limited duration
- is self-sealing for cracks of up to 0.4 mm that can form over time
- protects concrete, sealing pores and capillaries, and thus preventing the penetration of aggressive external chemicals (CO<sub>2</sub>, chlorides, sulphates, etc.) that cause the oxidation of reinforcement bars
- reduces time at job site: as soon as the formwork is removed, the concrete is waterproof and there is no need to wait for curing, as with other waterproofing systems
- costs less than other systems
- is ECOLOGICAL because it uses the chemistry of concrete, and does not pollute the environment

## EXISTING CONCRETE

### Benefits of Supershield repair products:

- penetrate deeply, to the complete thickness of the concrete, unlike other systems that are superficial or penetrate minimally
- can be used from both positive and negative sides, compared to the hydrostatic pressure, allowing repairs from the outside, for example, full tanks or reservoirs
- repair is permanent, unlike other systems that have a limited or short duration
- are self-sealing for cracks of up to 0.4 mm that form even after repair.
- protect concrete, sealing pores and capillaries, and thus preventing the penetration of aggressive external chemicals (CO<sub>2</sub>, chlorides, sulphates, etc.)
- are ECOLOGICAL because it uses the chemistry of concrete, and does not pollute the environment

**Supershield Products**



# DPC (Deep Penetrating Capillary) CEMENT BASED CRYSTALLINE PRODUCTS RANGE

Cement-based crystalline compounds for waterproofing and protecting concrete structures.

## ADDITIVES



### ADMIX 100/300



**Supershield Admix** is a cement based chemical admixture with active ingredient (DPC system) used to waterproof and protect the mass of concrete and to extend its life. The particular chemical composition of ADMIX reacts with the moisture and by-products of cement hydration to form within the pores and capillaries an insoluble crystalline structure. This becomes an integral part of the concrete mass and acts as a waterproof barrier against the penetration from any direction of water and chemical agents. The development of crystalline formation is also activated at a later time, in case of water infiltration or moisture, and it is able to seal cracks up to 0,4 mm.

**Supershield Admix** is formulated for use on job site (100) and in the concrete mixing plant (300) and it is suitable also for shotcrete and self-compacting concrete. The product does not change the rheology of concrete and normally improves its mechanical performance. It is always recommended to carry out a test with the specific concrete mix of the project before starting work.

**Mixing:** on job site (100) mix in the truck drum for 5/10 minutes;  
in the concrete mixing plant (300) add to the aggregates before adding water.

**Typical applications:** reservoirs, tanks, wastewater treatment plants, dams & bridges, tunnels & subway systems, underground vaults and parkings, foundations, basements, marine structures, roof slabs, manholes, concrete pipes, aquariums, swimming pools.

**Dosage:** 1% of the cement weight in a m<sup>3</sup> of concrete



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## COATINGS



### CRYSTALGUARD



**Supershield Crystalguard is a cementitious crystalline one component product, to be mixed with water to obtain a slurry and applied as a coating to the positive or negative side of concrete surfaces.**

It can be applied either in a single coat, or in two successive coats.

**Crystalguard** performs its waterproofing chemical action by forming insoluble crystals in the pores and capillaries of both new and existing concrete and stops water penetration and moisture coming from any direction. The product penetrates deeply and, in presence of moisture, in time waterproofs the whole concrete mass treated.

**Use:** for permanent waterproofing of foundations, concrete water tanks, roof slabs, water treatment plants, reservoirs, swimming pools, concrete pipelines, tunnels and subways.

**Dosage:** 0,8/1,00 kg per m<sup>2</sup> of surface each coat.



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## CRYSTALGUARD ULTIMA



**Supershield Crystalguard Ultima is a highly concentrated cementitious crystalline one component compound, especially formulated to provide a high level of waterproofing and protection.**

It rapidly stops moisture infiltrations entering the concrete through an accelerated crystallization process and provides an excellent barrier against aggressive chemicals. The product is mixed with water and applied as a slurry to the positive or negative side of the structure, either as a single coating or as a second coating on top of Crystalguard.

**Supershield Crystalguard and Crystalguard Ultima used in combination create an integrated system**, complementing each other and ensuring a quick waterproofing of the substrate and a high degree of protection.

**Use:** for permanent waterproofing of concrete water tanks, water treatment plants, reservoirs, concrete pipelines, underground structures, foundations, tunnels and subways, roof slabs.

**Dosage:** 0,8/1,00 kg per m<sup>2</sup> of surface each coat.



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## MULTIGUARD



**Supershield Multiguard is a cementitious based crystalline one-component product** to be mixed with water to obtain a slurry, and applied as a coating **to the positive side** of concrete surfaces, in a single coat or combined as a second coat to Supershield Crystalguard.

**Multiguard performs its waterproofing chemical action by creating a formation of insoluble crystals deep in the pores and capillaries of concrete**, thus sealing them and developing just under the surface a very thick crystalline growth that protects concrete from chemical aggressions and repellency on surface.

**Use:** for waterproofing and protecting flat roofs, foundations, concrete tanks, sewers and water treatment plants, water tanks and underwater structures.

**Dosage:** 0,8/1,00 kg per m<sup>2</sup> of surface per coat.



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## STRUCTURAL REPAIR AND RENOVATION OF CONCRETE



### CRYSTALMIX

**Supershield Crystalmix** is a cementitious one-component mortar that uses Supershield DPC technology to waterproof concrete. it is a quick setting, high strength mortar, expansive and non shrinking.

**Supershield Crystalmix** is used in concrete repairs, to seal pre-made grooves in vertical and horizontal joints, to form triangular shaped waterstop to seal rigid joints, and to repair cracks with the Crack Repair system.

**Use:** to repair damaged concrete, fill cracks, honeycombs, holes, joints etc.



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## CRYSTMIX ULTRA

**Supershield Crystalmix Ultra** is a cementitious one-component mortar, tyxotropic, fiber reinforced, based on Supershield DPC crystalline technology.

It is a quick setting, waterproofing, high resistance mortar, expansive and non shrinking with structural characteristics (R4).

**Crystalmix Ultra** is used in structural repairs of degraded concrete, to repair cracks with **Supershield Crack Repair System**, joints, etc.

**Use:** renovation and repair of degraded concrete, cracks, honeycombs, holes, etc.



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## CRYSTALPATCH

**Supershield Crystalpatch is a one-component, very rapid setting crystalline mortar of plastic consistency, with volumetric stability, for repairing concrete structures.**

The mixture takes advantage of DPC crystalline Supershield technology. It is used as a stucco to stop strong water leaks within seconds, sealing cracks, joints and various defects in concrete.

**Use:** to stop strong water leaks from cavities, construction joints, holes, honeycombs and cracks in concrete.



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# LCT (LIQUID CRYSTALLINE TECHNOLOGY) PRODUCT RANGE

The new generation of water-based crystalline products for waterproofing, restoration and protection of concrete.

## **SUPERSHIELD's new Liquid Crystalline Technology (LCT)**

is environmentally friendly, more performing, easier to use than cementitious crystalline products on the market today, and offers 3 ranges of products:

- additives for new concrete
- products for restoration of existing concrete
- products for the protection of infrastructures



## Liquid power

**ADMIX PLUS** | **CRYSTAL SPRAY** | **MULTISEAL**

The new generation of water-based crystalline products developed to improve waterproofing, rehabilitation and protection of concrete.



## ADDITIVES



### ADMIXPLUS



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**Supershield Admixplus** is a water based chemical admixture for waterproofing, protecting and improving the durability of concrete. The particular chemical composition of **Admixplus** reacts with the moisture and by-products of cement hydration to form within the pores and capillaries an insoluble crystalline structure. This becomes an integral part of the concrete mass and acts as a waterproof barrier against the penetration from any direction of water and chemical agents. The development of crystalline formation is also activated at a later time, in the case water or moisture enter into the concrete and is able to seal cracks of up to 0.4 mm.

**Supershield Admixplus** performs better than the cement-based crystalline admixtures as for resistance to compression and penetration; it is specially formulated to be compatible with all types of concretes and can be managed by the automatic cycle of the batching plant, like any other liquid additive. The product does not change the rheology of concrete and normally improves its mechanical performance. It is recommended to carry out a test with the specific concrete mix of the project before starting work.

**Typical applications:** reservoirs, tanks, wastewater treatment plants, dams & bridges, tunnels & subway systems, underground vaults and parkings, foundations, basements, marine structures, roof slabs, manholes, concrete pipes, aquariums, swimming pools.

**Dosage:** 1 lt. every 100 kg of cement contained in a m<sup>3</sup> of concrete.

### ADVANTAGES

- **easy to use:** it is dosed in the RMP like normal liquid plasticizers and managed by the computerized cycle of the plant (while the powder additives are normally dosed manually)
- **exact quantity:** being managed by the automated cycle of the RMP exact dosage is assured and recorded in the delivery document
- **dispersion:** the liquid product amalgamates more

homogeneously in the concrete mass than cementitious admixtures

- **maintains workability of concrete unchanged** for up to 90 minutes
- it is **compatible with all types of cement**
- it is **environmentally friendly** and contributes to obtain LEED points



## PRODUCTS FOR THE RESTORATION OF CONCRETE

CRYSTALSPRAY, the new water-based product of the LCT range is spray applied on the surface of concrete to be restored.

Thanks to its low viscosity, it penetrates into the pores and into the capillaries and reacts chemically into them forming an exceptional waterproofing and protective crystalline system.



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### CRYSTALSPRAY

**Supershield Crystalspray** is a liquid, one-component, water based, crystalline waterproofer spray applied to restore concrete damp or wet, even in presence of high hydrostatic pressure. In a few days concrete will dry up thanks to the hygroscopic crystals developed by the product in the pores and capillaries of the concrete mass.

**Crystalspray** penetrates deep in the mass of concrete (up to 50 cm. and more in presence of water) and remains active in time and will seal cracks up to 0,4 mm. even after years.

**Crystalspray** can be used as single application or in combination with **Supershield Multiseal** or **Clearseal**.

**Use:** for waterproofing structures where there is a strong hydrostatic pressure: pools, water tanks, water treatment plants, concrete pipes, reservoirs, tunnels, dams, bridges.

**Application:** spray, 1 ltr of product per 5 m<sup>2</sup> of surface.

### ADVANTAGES

**CRYSTALSPRAY** by **SUPERSHIELD** reduces the application time by about 80% and the labor cost of almost 90%, while ensuring better results than cementitious crystalline products.

#### CRYSTALSPRAY

It is spray applied by a low pressure pump

Requires only one application

Does not require curing

#### CEMENTITIOUS PRODUCTS

Applied with brush or spray pump

Require two coats, with a waiting time of at least 6 hrs between coats

Require water curing for 2/3 days to allow the penetration of the product into the concrete

## PRODUCTS FOR THE PROTECTION OF INFRASTRUCTURES

With SUPERSHIELD MULTISEAL crystalline technology evolves to an higher grade and becomes MULTIFUNCTIONAL.

With a **single spray application** on the surface of the concrete, MULTISEAL develops:

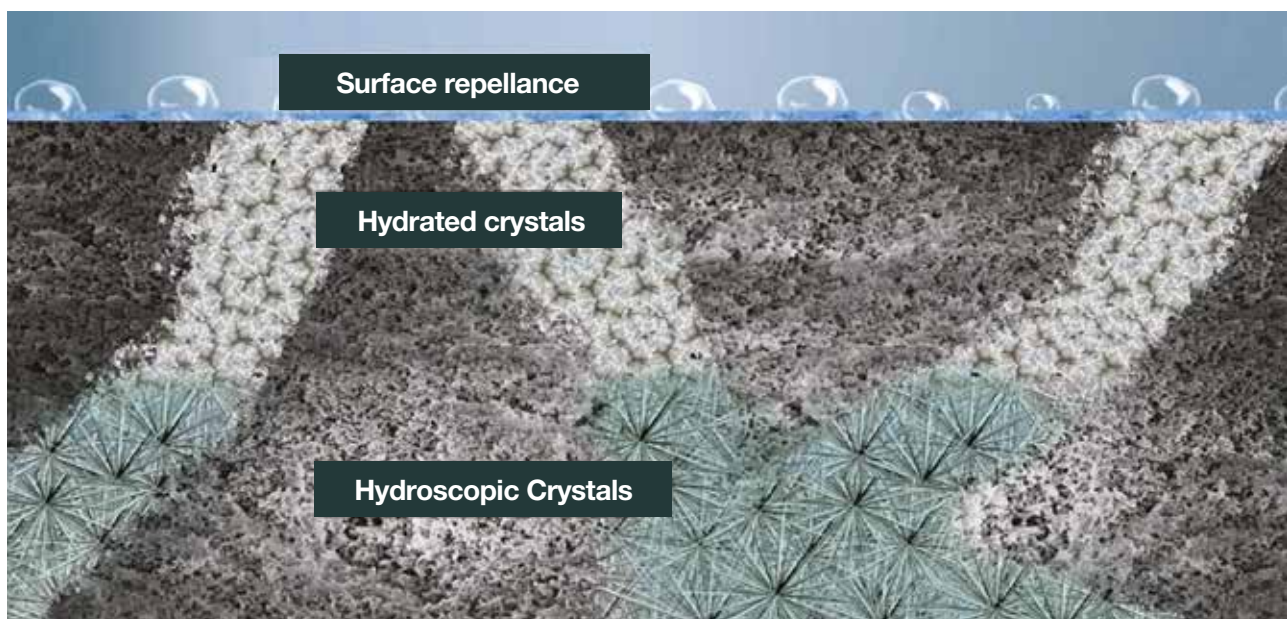
- hygroscopic crystals (DPC technology) that penetrate deeply, waterproofing the mass
- hydrated crystals, just below surface for a thickness of 0.5 / 2.00 cm creating a barrier extremely resistant to aggressive chemical agents such as chlorides and sulphates, to carbonation, ASR, and freeze-thaw cycles.
- a strong repellent effect, which prevents dust in the air from adhering, avoids formation of vegetation and, in the case of industrial floors, the penetration of oils and fuels.

MULTISEAL is the only product on the market that, with a single application, protects concrete from water penetration under hydrostatic pressure (PRAH) and from water penetration due to capillary absorption (PRAN), **thus protecting it from all possible causes of degradation.**

### MULTISEAL IS AN EXCLUSIVE SUPERSHIELD TECHNOLOGY

and it is the most economical solution to extend the life of infrastructures and to drastically reduce maintenance costs.

When the cost of the crystalline admixtures become too high, as in the case of large volumes of concrete needed for the construction of infrastructures, **MULTISEAL is the most economical, effective and ecological solution to protect concrete and drastically reduce maintenance costs**, thanks to its action against chemical aggression, mass waterproofing, great reduction of capillary absorption and repellency.





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## MULTISEAL

**Supershield Multiseal is a multifunctional liquid crystalline treatment**, developed exclusively by Supershield, ready to use, ecological and water based, **for waterproofing and protecting concrete and all cementitious materials**.

**Multiseal** generates two distinct crystalline formations in the mass of concrete: hygroscopic crystals and hydrated crystals. The first develop and penetrate deeply, sealing pores, capillaries and cracks, while the latter develop just below the surface sealing completely pores and creating a barrier very resistant to external chemical agents.

On the surface MULTISEAL develops also repellency, that avoids penetration of water, oil and carburants.

The product, sprayed on in a single coat, waterproofs and protects concrete from water, moisture, chemical agents, hydrocarbons, problems associated with temperature such as cracks from shrinkage or swelling, damage caused by repeated freeze-thaw cycles, penetration of chloride ions and alkali-silica reactions (ASR).

**Multiseal stops all causes of degradation of concrete and prevents the oxidation of reinforcement rods.**

**Use:** for waterproofing and protecting bridges, tunnels, flat roofs, car parks, industrial floors, galleries, foundations, underground concrete structures, earth-retaining walls and hydraulic works.

**Application:** spray, 1 ltr of product per 5 m<sup>2</sup> of surface.





## VAPORSTOP

**Supershield Vaporstop** is a ready-to-use, water-based product based on **crystalline technology**, specifically designed to stop within 24 hours the passage of water vapor through concrete.

The product is applied to substrates matured at least seven days, and is ideal for industrial floors that are to be treated with epoxy resins or other types of coatings, avoiding the formation of bubbles due to water vapor passing through the concrete floor.

**Supershield Vaporstop** also increases the surface resistance of floors, reduces the risk of cracking and has very good resistance to aggressive chemicals and to freeze-thaw cycles.

**Use:** for industrial flooring, such as in the food and pharmaceutical industries.

**Application:** spray, 1 ltr of product per 5 m<sup>2</sup> of surface



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## CLEARSEAL



**Supershield Clearseal is a crystalline water-based sealant and repellent, one-component, colourless and fast acting, that does not modify the surface appearance of substrate.**

**Supershield Clearseal** penetrates deeply into the concrete, stone and masonry surfaces, and by means of hydrolysis forms a chemically-resistant barrier in the pores and capillaries, without changing surface appearance.

It is designed to be applied in a single coat or as final coating with other products from the **Supershield** range such as **Crystalspray**, **Vaporstop**, **Hardseal**, **Admix**.

**Use:** can be applied on concrete, brick, stone, masonry surfaces, terracotta tiles, pavers, mortar and on any neutral substrate.

**Application:** spay, brush or roller: 1 ltr of product per 5 m<sup>2</sup> of surface.



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# WATERPROOFING LIQUID MEMBRANES

## POLYMER MODIFIED CEMENTITIOUS MEMBRANES



### FLEXI



**Supershield Flexi is a two-component, cement-based, waterproofing membrane** composed of a liquid polymer in aqueous dispersion and a cement-based powder. The two components are mixed immediately before application.

**Supershield Flexi** is suitable for areas where there is the possibility of cracks, as it has excellent elasticity.

It can be applied to both vertical and horizontal surfaces, as it has excellent initial and final adhesion to the substrate. It is long lasting, resistant to heat and cold, and is permeable to water vapour.

**Supershield Flexi** is an active barrier against carbon dioxide (CO<sup>2</sup>).

**Use:** **Flexi** is employed on concrete, masonry and plaster surfaces which need to be sealed and protected from moisture. Thanks to its elasticity, it can be used on surfaces with problems of cracking or deformation. **Flexi** is certified for application under tiles and use in contact with drinking water.

**Dosage:** 1.25 kg / m<sup>2</sup> per coat, minimum 2 coats. It can be used with **Supershield** elastic **Wapnet** between the 2 coats.



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## POLYURETHANE MEMBRANES

### The innovative WAP-ELASTIC technology

#### (Water-based Aliphatic Polyurethane) developed by Supershield

is based on an aqueous dispersion of aliphatic polyurethanes with excellent resistance to U.V. rays, that does not require further protection from the sun.

#### The WAP-ELASTIC range of aliphatic polyurethane liquid membranes offers a large area of applications:

- protective coatings for bridges, overpasses, flyovers, tunnels and other infrastructures
- waterproofing of new and existing flat roofs and terraces in concrete, masonry, metal, wood
- waterproofing of roofs with complex geometries and limited accessibility
- waterproofing of deteriorated bituminous membranes or terraces with leaks, avoiding their reconstruction
- reflective coating to improve energy efficiency while reducing cooling costs
- indoor and outdoor parking lots

**WAP-ELASTIC Supershield technology combines the high performance of the polyurethanes in aqueous dispersion with the ease of application of a one-component product, water based, respectful of the environment.**

## WAP RANGE



### WAPPRIME

Special one-component coating to promote adhesion of polyurethane products on particularly smooth surfaces and on existing bituminous membranes.



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## ELASTAKOTE 100



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**Supershield Elastakote 100** is a cold applied, one-component, water based, liquid waterproofing membrane that is easily applied to form a resilient barrier over concrete and masonry roofs and walls.

**Supershield Elastakote 100** will waterproof the substrate, protect it from weather and atmospheric degradation and also acts as a cool roof coating owing to its reflective properties. **Elastakote 100** will remain elastic, will bridge and seal cracks in the substrate, can be walked on and coloured with RAL system.

**Supershield Elastakote 100** is based on innovative **Supershield Pumo** (Polyurethane Modified) technology based on a modified of aliphatic polyurethane dispersion in water, with excellent U.V resistance and that does not require any top coat.

**Use:** on exterior walls exposed to the elements, terraces, flat roofs, over existing bituminous membranes, as an architectural and protective coatings for bridges, flyovers, tunnels and other infrastructures, on exposed roofs with variable or complex geometry.

**Dosage:** 0.5 L /m<sup>2</sup> per coat, minimum 2 coats. **Supershield** elastic **Wapnet** can be interposed between the two coats.



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## ROOFON

**Supershield Roofon** is a water-based, cold applied, waterproofing liquid membrane, that uses **Supershield** innovative WAP (Water-based Aliphatic Polyurethane) - ELASTIC TECHNOLOGY based on 100% pure polyurethane aliphatic dispersion with excellent U.V resistance. **Roofon** is protective and insulating, permeable to water vapor, walkable, applicable on roofs, walls in concrete, masonry, metal, wood and on existing bituminous membranes. Can be coloured with RAL system.

**Supershield Roofon** waterproofs the substrate, protects it from weather and atmospheric degradation and it also acts as a thermal insulating coating, due to its high reflectivity.

**Roofon** remains elastic and maintains its crack bridging ability over time.

**Use:** protective coatings for bridges, flyovers, tunnels and others infrastructures; waterproofing of flat roofs and terraces, both new and existing; waterproofing of roofs with complex geometries and limited accessibility; waterproofing of deteriorated bituminous membranes or terraces with leaks, avoiding their reconstruction; reflective coating to improve energy efficiency by reducing cooling costs; external walls of buildings; railings.

**Compatible substrates:** concrete, screeds, bricks, stone, metal and existing bituminous membranes.

### Consumption:

- 0.5 l / m<sup>2</sup> by roller or spray; minimum two coats;
- 0.6 / 0.7 lt / m<sup>2</sup> by roller or spray , minimum two coats if used with interposed **Supershield Wapnet** elastic net.





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## INFRON

**Supershield Infron** is a one-component waterproofing liquid membrane, based on pure aliphatic polyurethane in aqueous dispersion, transpiring, resistant to UV rays, abrasion and wear resistant, which is applied as

- **final coating on other protective Supershield membranes (Elastakote / Roofon)** in buildings and infrastructures subject to wear and weathering
- floor covering for underground and external car parks
- alone or as a final coat on **Supershield Elastakote / Roofon**.

**Supershield Infron** is based on SUPERSHIELD innovative **WAP** (Water-based Aliphatic Polyurethane) -ELASTIC technology composed by a 100% aliphatic polyurethane dispersion with excellent sheen and U.V resistance.

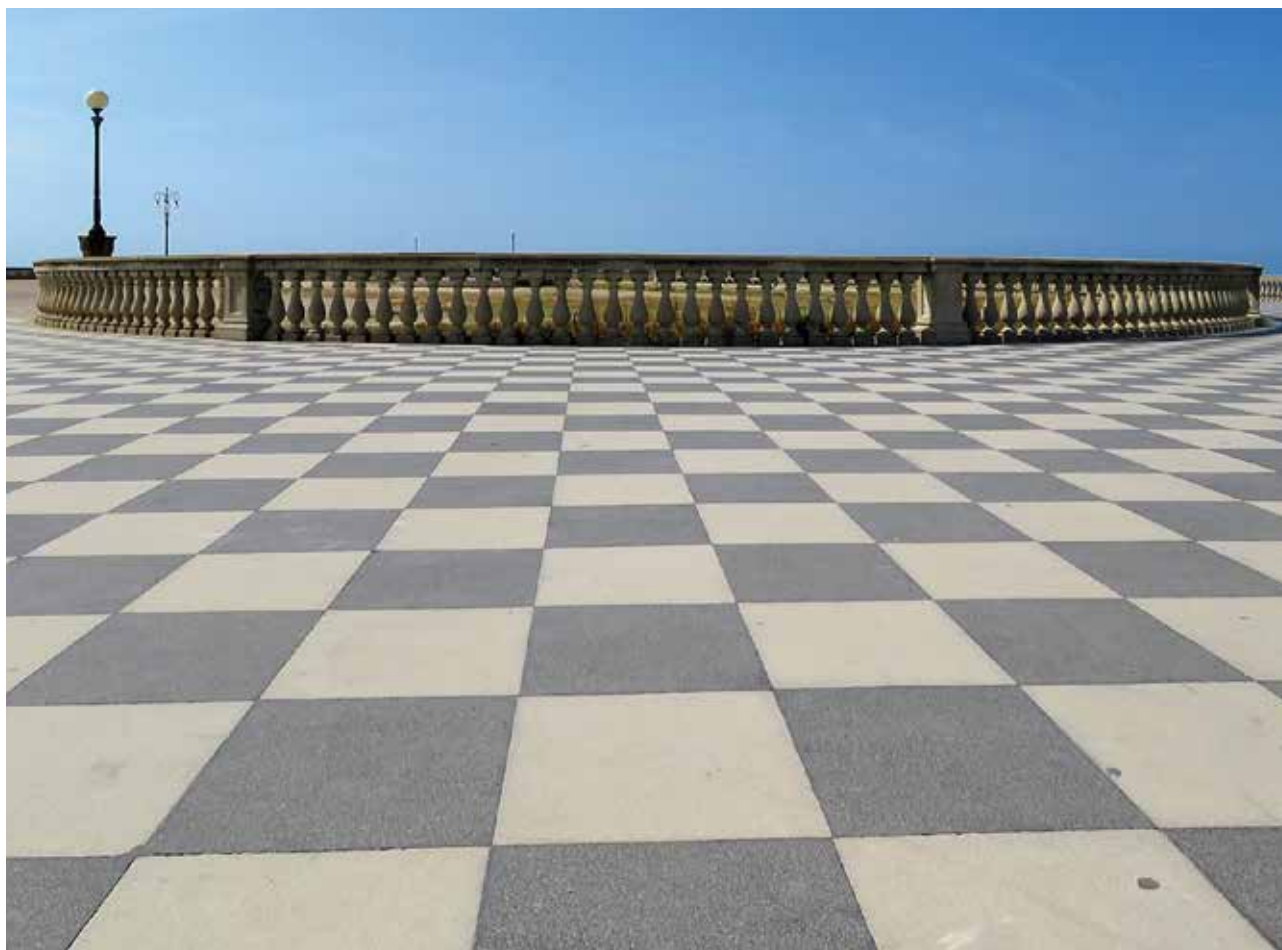
When the **Supershield Infron** is applied, it forms a seamless, protective coating that protects efficiently on a long term basis.

**Use:** top coat on other polyurethanic membranes subject to high pedestrian traffic; floor coating for car parkings areas covered and external with medium traffic; sanitizing coating for floors and walls; protective coating for bridges, flyovers, tunnels; waterproofing of surfaces exposed to wear and weathering.

### Consumption:

0,2 / 0,3 lt / m<sup>2</sup> by roller or spray, in two / three coats;

0.2 / 0.3 l / m<sup>2</sup> by roller or spray, when applied as a final anti-wear coat on **Elastakote** or **Roofon**.



1370-CPR-0929  
EN 1504-2:2004  
Principi PR-IR



## CLEARON

**Supershield Clearon** is a transparent liquid membrane, one-component, based on pure aliphatic polyurethane in aqueous solution, transpiring, resistant to UV rays, to abrasion and wear, elastic, applied to:

- waterproof terracotta and tiled terraces leaking, without having to remove them
- final coating with high resistance to abrasion on other SUPER-SHIELD protective membranes (**Elastakote/Roofon**) in buildings and infrastructures subject to wear and weathering
- final coating to protect and polish wood and steel
- as a binder resin for sand carpet coating.

**Supershield Clearon** is available in the MATT and SEMI GLOSS versions

**Use:** transparent waterproofing of terraces and balconies; final coating on waterproofing membranes subject to high pedestrian traffic; transparent waterproofing of ceramics, glass and natural stones; sanitizing coating for floors and walls; protective coating for bridges, flyovers, tunnels; glossy protective coating for steel and wood.

### Consumption:

- 0.3 l/m<sup>2</sup> by roller, brush or spray, in two/three coats if applied on tiles /ceramic/terracotta;
- 0.2 / 0.3 l/m<sup>2</sup> by roller or spray in a single coat, if applied as a top anti wear coating on **Elastakote** or **Roofon**
- 0.8 - 1.2 kg/m<sup>2</sup> in two or three layers, as a binder resin for sand carpet coating.



# INSULATING AND WATERPROOFING LIQUID MEMBRANES



## THERMOKOTE



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EN 1504-2:2004  
Rivestimento



**Supershield Thermokote** is a liquid insulating coating, based on nano-ceramic molecules, which is designed for insulating buildings against heat and cold with a single application. After application, the coating becomes a continuous membrane which ensures not only thermal insulation but also impermeability, fire resistance and noise abatement.

In total, **Thermokote** prevents 95% of solar thermal energy from entering a building; the remaining 5% of the heat is absorbed by the microspheres, thanks to their high heat dissipating power and low conductivity.

**Thermokote** has excellent resistance to standing water and great strength, is resistant to UV, and is flexible and long lasting. Due to the particular cross linking structure of its molecules, **Thermokote** has a high adhesion capacity and minimum expansion and contraction values on substrates such as wood, iron, bricks and concrete.

The cross linking structure of **Thermokote** stops water entering from the outside but allows water vapour to pass through from the inside (Variable Permeability), which prevents the formation of bubbles in the coating and allows the substrate to breathe.

In addition, **Thermokote** prevents dirt and smog from sticking to the coating and, thanks to its high tensile strength, it can be walked on.

**Use:** for insulating from heath roofs, flat roofs, terraces, exterior and interior walls, technological installations exposed to the sun, etc.

**Dosage:** 0.5 L/m<sup>2</sup> per coat, minimum 2 coats.

# TECHNOLOGICAL COATINGS

## TREATMENTS FOR FLOORS



### HARDSEAL

**Supershield Hardseal is a crystalline, one-component, transparent, water-based hardener, sealer and dustproof product for concrete floorings.**

**Hardseal** hardens the mass of concrete, strengthening and protecting it from deterioration, oil, grease and other contaminants; it neutralizes alkalis and improves adhesion for further coatings. The product is non-toxic and contains no volatile organic compounds (VOC). It is applied by sprinkling on the surface to be treated and washing after with water.

**Hardseal**, diluted 1 to 7 and applied on fresh concrete, performs as an anti-evaporating agent, allowing the concrete to cure properly and avoiding shrinkage cracks.

It is designed to be applied in a single coat or as final coating on **Supershield** products such as **Crystalspray**, **Vaporstop**, **Hardseal**, **Admix**.

**Use:** concrete floors of industrial warehouses, depots, hangars.

**Dosage:** 1 litre of product per 5/7 m<sup>2</sup>, spray on clean and dry surface.



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## SLIPSTOP 100 / 200



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UNI EN 1504-3:2005  
Principi  
CR-SS-RP



**Supershield Slipstop** is a colourless, odourless, water-based, one-component product. **Slipstop** is an anti-slip treatment for tile or stone flooring which increases resistance to slipping, by increasing the coefficient of friction, without altering appearance or structure.

**Slipstop** is a chemical compound which reacts with the aluminates and silicates present in any type of substrate, modifying its molecular structure and creating microscopic channels in the surface which increase the coefficient of friction. When someone walks over this microscopic indentation a vacuum is created which draws water and oils out of the surface of the shoes.

However, to the naked eye, the appearance of the surface does not change. **Slipstop** is not a coating, thus walking over it does not erode it, and it does not require frequent re-applications.

**Use:** for eliminating/reducing the slipperiness of tiles, marble, granite, terrazzo-type floors and porcelain surfaces in apartment buildings, shopping centres, factories, hospitals, hotels and restaurants, shops, stairs, schools, swimming pools, airports, on bathroom floors and in bathtubs and showers.

**Dosage:** 1 litre of product per 5/7 m<sup>2</sup>, spray on clean and dry surface.



## WATERPROOFING COATINGS



### BONDPLAST

**SUPERSHIELD BONDPLAST** is a multipurpose additive, with a high content of solid polymers in dispersion, for improving the performance of cement-based mixes.

The product waterproofs cement mixtures and promotes their curing. It increases their adhesion and strength, gives them excellent resistance to atmospheric agents, and reduces shrinkage cracking.

**Use:** as an adhesion primer, as an additive for preparing repair mortars, waterproof coatings and plasters, anti-corrosion coatings, industrial floors, and adhesives and fillers for tiles.

**Dosage:** 1 to 4 litres of product per 50 kg of cement, depending on the type of use.



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EN 934-2:2009  
+A1:2012  
Tabella 9



# WATER-REACTIVE RESINS



## RESINSEAL 800/2000

Hydro-expansive polyurethane resin for stopping strong water leaks from cracks in concrete and masonry.



## RESINSEAL CLEANER

Oil-based cleaning agent for lubricating electrical or manual pneumatic pumps for resin injection.



## RESINSEAL PACKER

13x120 mm or 16x170 mm flat head injector for hydro-expansive resins.



## RESINSEAL PACKER CONNECTOR

Special connector joint from pump to flat-head injectors.



# STRUCTURAL RESTORATION OF CONCRETE



## RENOV SAN

Alkalinizing solution applied to damaged concrete prior to concrete restoration.



## RENOV STEEL

One-component, anti-corrosion, passivating product for oxidized reinforcing rods.



## RENOV TREAT

Migrating corrosion inhibitor applied to concrete as a preventative measure to inhibit oxidation of reinforcing rods.



## RENOV TIX

Thixotropic, non-shrink, structural cement mortar, fibre-reinforced.



## RENOV COL

Pourable, non-shrink, structural mortar for precision grouting.



## CRYSTMIX ULTRA

Crystalline waterproofing structural mortar, one component, fiber reinforced, with high strength and bonding for restoration of concrete in presence of humidity or moisture.



# PRODUCTS FOR RISING DAMP AND MOULD PREVENTION

## PRODUCTS FOR RISING DAMP



### DRYWALL

Water repellent based on an aqueous solution of potassium methylsiliconate used to create a chemical barrier against capillary water rise in stone or masonry walls.



### INTOSAN

Dehumidifying, anti-condensation plaster for the restoration of walls, both below and above ground.

## MOULD PREVENTION PRODUCTS



### MILDEW CLEANER

Acid detergent for the deep cleaning of moulds and lichens on wall surfaces.



### MILDEW REMOVER

Ecological anti-mould treatment for the elimination of hyphae from wall surfaces.

# COMPLEMENTARY PRODUCTS

## SEALS FOR FORMWORK SPACERS



### PLUGSEAL P

Hydro-expansive PVC plug for PVC formwork spacers diameter 21 mm.



### SQUARESEAL L

Hydro-expansive rectangular seal for steel formwork spacers, width of 19 mm.



### WASHERSEAL P

Hydro-expansive O-ring seal for PVC formwork spacers diameter 21 mm.



### CLAMP 3 POINTS

Three-pronged pliers for applying SQUARESEAL L, hydro-expansive rectangular seals, to steel formwork spacers.



## HYDROEXPANSIVE, STEEL AND PVC WATERSTOPS



### JOINTSEAL TAPE

Waterstop joint made by sodium bentonite and hydro-expansive rubber, dimensions 25x20 mm, also available in SW version (for salt water and leachate) and R versions (hydro-expansive rubber pure).



### JOINTBELT PVC 250

PVC waterstop with a central bulb, specifically designed for expansion joints. Width 25 cm.



### JOINTSEAL TUBE

Hydro-expansive waterstop paste in cartridge dispenser.



### JOINTNET

Metal cage open on one side for easier application of JOINTSEAL TAPE on rigid joints.



### JOINTSTEEL BW/P

Steel waterstop joint covered by butylic rubber for waterproofing new castings and rigid joints.



## WATERPROOFING STRIPS AND BONDING EPOXY



### FLEXSTRIP 80 / 150

Self-adhesive elastic strip made of butyl rubber for the protection and waterproofing of rigid joints.



### FLEXSTRIP 250

Elastic strip in hypalon, with high deformability, for the protection and waterproofing of expansion joints, to be glued with **Epomatrix**.



### FLEXSTRIP 120

Elastic strip of butyl rubber for the protection and waterproofing of rigid joints.



### EPOMATRIX

Two-component epoxy sealant for glueing **Flexstrip 250** strips.

## SEALANTS



### SEALFLEX S

Epoxy-polyurethane sealant with high adhesive capacity and excellent resistance to structural movement.



### SEALFLEX N

A universal polyurethane sealant for moderately deformable joints.



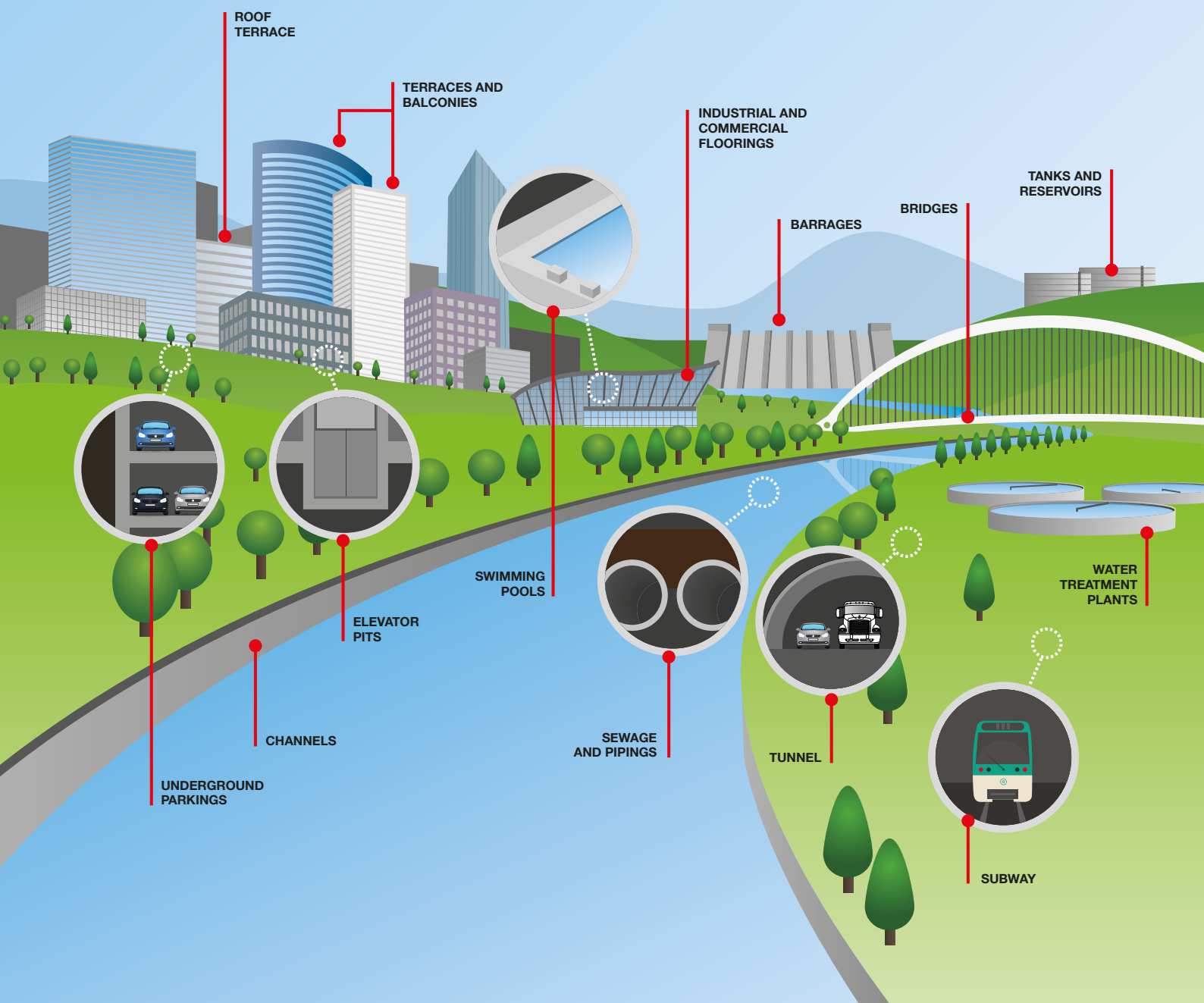
### FILTENE 15

A compressible, closed-cell polyethylene foam cord, 15 mm in diameter, for the correct setting of expansion joint depth and for the construction of the third wall in expansion or semi-rigid joints, before sealing them with **Sealflex S**.



### FILTENE 30

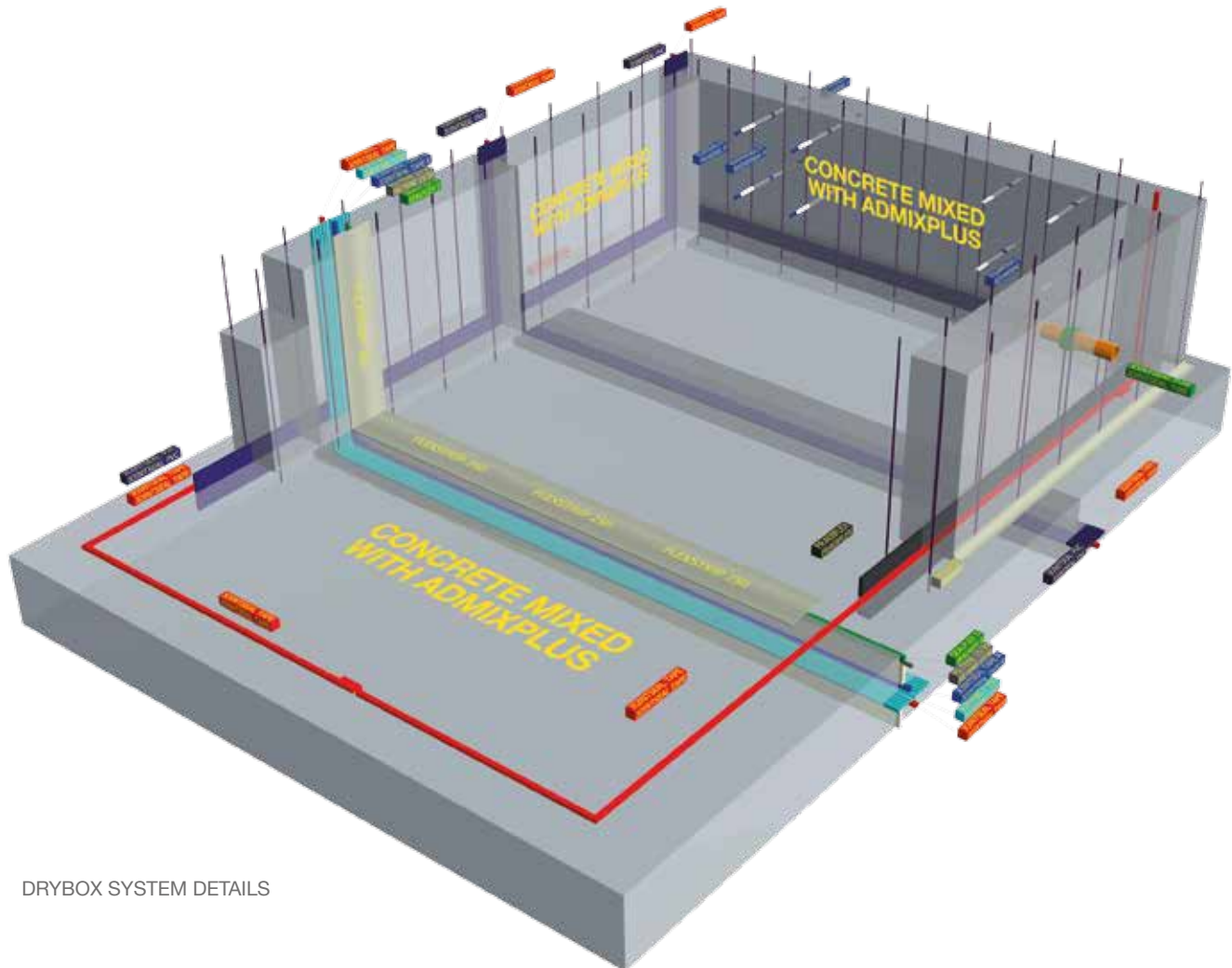
A compressible, closed-cell polyethylene foam cord, 30mm in diameter, for the correct setting of expansion joint depth and for the construction of the third wall in expansion or semi-rigid joints, before sealing them with **Sealflex S**.



# Problems and solutions

# STRUCTURES BELOW WATER TABLE AND TANKS

## BUILDING NEW STRUCTURES



DRYBOX SYSTEM DETAILS

One of the major problems in building underground structures is their waterproofing and protection.

There are a variety of systems for waterproofing basements, but most of them just form a surface barrier which has a limited lifespan and can be damaged by various factors; thus leaks occur either immediately or in time.

**Supershield solves the problem of waterproofing basements**, permanently and definitively, with the crystalline products of its DPC and LCT range.

**Supershield Admix or Admixplus**, mixed with the concrete at the time of its preparation, waterproofs the entire mass of concrete and prevents water and liquids entering from any direction.

Moreover, the product remains always active in the concrete and will act as a sealant if cracks develop

at a later stage.

ADMIX seals the concrete's pores and capillaries and protects it against external chemical agents which attack the reinforcement bars, thus preventing degradation and extending concrete life.

### PROBLEM

To prevent leaks and humidity in the construction of underground structures in constant contact with groundwater.

### SOLUTION

Application of the DRYBOX system, a waterproofing system for underground structures below water table.



# DRYBOX SYSTEM

**SUPERSHIELD DRYBOX** is a waterproofing system for foundations and hydraulic structures that combines the use of **SUPERSHIELD ADMIX**, as an additive for waterproofing the mass of concrete, with the use of specific products and adequate care for the implementation of construction and movement joints.

By analysing the project and taking care of all problems involved, **SUPERSHIELD** provides not only a waterproofing solution, but a protection system that will last in time as long as the structure.

The system is implemented by the same construction company that runs the project under the assistance and supervision of **SUPERSHIELD** technicians.

## Supershield DryBox waterproofing system benefits:

- simple to implement
- does not require changes to the structural design
- can be implemented by the same construction company that runs the project
- does not require changes to the "concrete mix" prescribed by the specifications of the project
- does not modify normal construction practices
- significantly reduces construction time compared to other systems
- it is less expensive compared to other waterproofing systems
- it is ecological, because it does not involve the use of polluting products like bitumen, epoxy resins, etc., and thus increases LEED score

# MAIN COMPONENTS OF DRYBOX SYSTEM

## Impermeabilizzazione e protezione delle strutture



### **ADMIX 100/300**

Cement based admixture for waterproofing the mass of concrete by crystallization, to be added to concrete in the appropriate proportion.



### **ADMIXPLUS**

Water based admixture for waterproofing the mass of concrete by crystallization, to be added to concrete in the appropriate proportion at the RMP or on job site.



### **HARDSEAL**

Crystalline, one-component product, transparent and water-based, acting as curing agent on fresh concrete to avoid shrinkage cracking.



### **BETONFIBRE SS 180**

Polypropylene multi-filament fibres, to reduce concrete shrinkage.  
Dosage: 1Kg/m<sup>3</sup>



### **BETONFIBRE SS 540**

Polyolefin structural macrofibre in the form of a twister, high performance, 54 mm long, specific for concrete, for industrial floors, for structural concrete, for spritz beton.  
Dosage: 1/1,5 Kg/m<sup>3</sup> or as required by the designer.

## Waterproofing of rigid joints



### **JOINTSEAL TAPE**

Sodium bentonite butylic rubber waterstop joint (applied, where necessary, with **Jointnet** metal cage) for waterproofing both horizontal and vertical rigid connections. Also available in **Jointseal Tape SW** version for salt water and leachate and **Jointseal Tape R** in butylic rubber.



### **SEALFLEX N**

Polyurethane sealant in cartridge dispenser for sealing **Jointseal Tape** to concrete.



### **JOINTSEAL TUBE**

Hydro-expansive sealant in cartridge dispenser for waterproofing through pipes, metal elements (structural or otherwise), connections and joints, etc.

## Reinforcement of rigid joints



### **CRYSTALMIX**

Crystalline, waterproofing mortar used to form internal/external "coves" between slabs and walls.



### **JOINTSEAL PVC**

Flat, ridged PVC waterstop joint, for waterproofing casting resumptions and horizontal and vertical rigid joints.



### **JOINTSTEEL BW/P**

Special steel waterstop joint, coated by butylic rubber, for waterproofing casting resumptions, horizontal and vertical rigid joints.

## Waterproofing of formwork spacers



### **WASHERSEAL P**

Hydro-expansive PVC O-ring seal for plastic formwork spacers with a diameter of 21 mm.



### **PLUGSEAL P**

Hydro-expansive PVC plug for plastic formwork spacers with a diameter of 21 mm.



### **SQUARESEAL L**

Hydro-expansive rectangular seal for iron formwork spacers width of 19 mm, inserted using the special 3 pronged pliers.

## Horizontal and vertical expansion joints waterproofing



### **JOINTBELT PVC 250**

PVC waterstop joint with central bulb, for waterproofing horizontal and vertical movement joints.



### **FLEXSTRIP 250**

Hypalon elastic strip, fixed with epoxy paste **Epomatrix**, for waterproofing and protecting horizontal and vertical movement joints.



### **SEALFLEX S**

Epoxy-polyurethane sealant with high shore hardness for sealing connections and horizontal and vertical movement joints, after the application of **Filtene 15** or **30** backer rod.



### **JOINTSEAL TAPE**

Sodium bentonite waterstop joint for waterproofing both horizontal and vertical rigid and movement connections. Also available in the **Jointseal Tape SW** version for salt water and leachate and **Jointseal Tape R** in butylic rubber.



### **FILTENE**

A compressible, closed-cell polyethylene foam cord, for the correct setting of expansion joint depth (the base of the joint).

## Waterproofing of through pipes



### **JOINTSEAL TUBE**

Hydro-expansive sealant in a cartridge dispenser for waterproofing through pipes, metal elements (structural or otherwise), connections and joints, etc.



### **JOINTSEAL TAPE**

Sodium bentonite waterstop joint for waterproofing through pipes of big dimension. Also available in the **Jointseal Tape SW** version for salt water and leachate and **Jointseal Tape R** in butylic rubber.



### **CRYSTALMIX**

Waterproofing, crystalline, one component mortar with quick-binding characteristics and high strength, expansive and non-shrinking, used to fill the space between the hole in the concrete and the pipe.



### **FLEXSTRIP 80/120/150**

Butyl rubber adhesive strips for waterproofing connections between horizontal and vertical concrete or masonry elements.



### **FLEXI**

Two-component cementitious liquid membrane with high elasticity for waterproofing and protecting surfaces and walls.



# UNUNDERGROUND STRUCTURES

## REPAIRING EXISTING STRUCTURES



### PROBLEM

Strong water leaks of water from cracks, tie holes, connections, rigid joints, expansion joints, honeycombs, pipings, floors, etc.

Strong humidity in negative pressure on concrete walls, defective or missing expansion rigid and joints, etc.

Where: **underground structures and car parks, subways, tunnels, lift pits, swimming pools, tanks, etc.**

### SOLUTION

1 - CRACK REPAIR System: special method of application of quick setting crystalline mortars.

2 - Injection of water-reactive resins (**Resinseal System**).

3 - Sealing with hydro-expansive waterstop paste.

4 - Application of two-component osmotic cement mixtures.

## PRODUCTS TO APPLY

### High humidity coming from negative side on concrete walls

#### CRYSTALGUARD

Deep penetrating waterproofing, one-component, cement-based crystalline product. Mixed with water and applied as a coating in form of slurry to concrete, either on positive or negative side with respect to the hydraulic pressure.

#### CRYSTALGUARD ULTIMA

Deep penetrating waterproofing, highly concentrated, crystalline, one-component, cement-based product. Mixed with water and applied as a coating in the form of slurry to concrete, either on the positive or negative side with respect to the hydraulic pressure.

#### MULTIGUARD

Deep penetrating waterproofing, one-component, cement-based product with crystalline and repellent action. Mixed with water and applied as a coating in the form of slurry to concrete surfaces on positive side with respect to hydraulic pressure.

#### CRYSTALSPRAY

Water based, transparent, crystalline product, spray applied, for drying and waterproofing concrete structures in a single application.

## **Mortars for repairing cracks, honeycombs and stopping caused by faulty or missing waterproofing of rigid joints, etc.**

CRACK REPAIR System, consisting of:

### **CRYSTALMIX**

Waterproofing, crystalline, one-component, cement-based mortar quick-binding, high strength, expansive and non-shrinking.

### **CRYSTALPATCH**

Waterproofing, one-component, cement-based rapid setting, non-shrink mortar with excellent bonding. For stopping in a few seconds strong water leaks from cracks, joints and concrete defects.

### **CRYSTALGUARD**

Deep penetrating waterproofing, one-component, cement-based crystalline product. Mixed with water and applied as a coating in form of slurry to concrete, either on positive or negative side with respect to the hydraulic pressure.

## **Polyurethane resins for repairing cracks, honeycombs, leaks from defective or missing waterproofing of rigid joints and expansion joints**

RESINSEAL System consisting of:

### **RESINSEAL 800/2000**

Hydro-expansive polyurethane resin forstopping strong water leaks from cracks in concrete and masonry.

### **RESINSEAL PACKER**

Flat-head metal injectors, designed specifically for resin injections, supplied in two sizes: 13 x 120 mm and 16 x 170 mm.

### **RESINSEAL PACKER CONNECTOR**

Metal connector to linking the injectors and the high-pressure pipe of the injection pump.

### **RESINSEAL HIGH PRESSURE PUMP**

Manual or electric high-pressure pump (from 40 to 200 bars) for injecting thydro-expansive resin.

### **RESINSEAL CLEANER**

Lubricating agent specifically designed for cleaning resin injection pumps.

## **RELATED PRODUCTS**

### **Hydro-expansive waterstops**

#### **JOINTSEAL TUBE**

hydro-expansive sealant in cartridge dispenser for waterproofing through pipes, metal elements (structural or otherwise), connections and joints, etc.

### **Osmotic cement mixtures**

#### **CEMCOAT BIC**

a two-component, osmotic cement mixture resistant to positive and negative hydraulic pressure, certified for contact with potable water (applied by brush, spatula and/or spray)

# ABOVE-GROUND STRUCTURES

## NEW STRUCTURES



### PROBLEM

Permanent waterproofing of terraces, balconies, flat roofs, swimming pools, roof gardens, plasters, etc.

Where: **water tanks, pools, water treatment plants, balconies, terraces**, etc.



### SOLUTION

Permanent waterproofing of the mass of concrete and additional protection with penetrating, water-repellent products with crystalline action.

## PRODUCTS TO APPLY

### Waterproofing of structures

#### **ADMIX (100/300 or ADMIXPLUS according to project and construction site requirements)**

Mass waterproofing admixture with crystalline action to be added to concrete in appropriate proportion.

#### **MULTISEAL**

Multifunctional, crystalline waterproofing liquid, water-based and ready to use, with excellent repellent, protective and anti-degradation properties for concrete.

#### **CRYSTALSPRAY**

Water based, transparent, crystalline product, spray applied, for drying and waterproofing concrete structures in a single application.

### Plasters

#### **BONDPLAST**

Multipurpose mixture, with a high content of solid polymers in dispersion, for waterproofing plasters and mortars: it improves their adhesion to the substrate and their strength, gives them excellent resistance to atmospheric agents and reduces shrinkage cracking.



# ABOVE GROUND STRUCTURES

## REPAIR OF EXISTING STRUCTURES



### PROBLEM

Damp exterior and interior walls of buildings, leaks from balconies and terraces

Where: **water tanks, pools, water treatment plants, balconies, terraces, etc.**



### SOLUTION

Repairs and waterproofing targeted at the problem, by the use of crystallizing mortars, of transparent, water-repellent, non-film treatments, by the application of elastic strips and by sealing rigid or movement joints with elastomeric sealants

## PRODUCTS

### Leaks from balconies and terraces (removal and resurfacing)

#### CRYSTALGUARD

Deep penetrating waterproofing, one-component, cement-based crystalline product. Mixed with water and applied as a coating in form of slurry to concrete, either on positive or negative side with respect to the hydraulic pressure.

#### CRYSTALGUARD ULTIMA

Deep penetrating waterproofing, highly concentrated, crystalline, one-component, cement-based product. Mixed with water and applied as a coating in the form of slurry to concrete, either on the positive or negative side with respect to the hydraulic pressure.

#### MULTIGUARD

Deep penetrating waterproofing, one-component, cement-based product with crystalline and repellent action. Mixed with water and applied as a coating in the form of slurry to concrete surfaces on positive side with respect to hydraulic pressure.

#### FLEXI

Two-component cementitious liquid membrane with high elasticity for waterproofing and protecting surfaces and walls.

## **MULTISEAL**

Multifunctional, crystalline waterproofing liquid, water-based and ready to use, with excellent repellent, protective and anti-degradation properties for concrete.

## **CRYSTALSPRAY**

Water based, transparent, crystalline product, spray applied, for drying and waterproofing concrete structures in a single application.

## **ROOFON**

Water-based, cold applied, waterproofing liquid membrane, based on 100% pure polyurethane aliphatic dispersion with excellent U.V resistance, very elastic, long lasting, protective and insulating, permeable to water vapor, walkable, colourable with RAL system.

## **Repair of cracks (CRACK REPAIR System)**

CRACK REPAIR System, consisting of:

### **CRYSTALMIX**

Waterproofing, crystalline, one-component, cement-based mortar quick-binding, high strength, expansive and non-shrinking.

### **CRYSTALPATCH**

Waterproofing, one-component, cement-based rapid setting, non-shrink mortar with excellent bonding. For stopping in a few seconds strong water leaks from cracks, joints and concrete defects.

### **CRYSTALGUARD**

Deep penetrating waterproofing, one-component, cement-based crystalline product. Mixed with water and applied as a coating in form of slurry to concrete, either on positive or negative side with respect to the hydraulic pressure.

## **Leaks from balconies and terraces (without removal and resurfacing - PRO TERRACE System)**

### **CLEARON**

Transparent liquid membrane, one component, based on pure aliphatic polyurethane in aqueous solution, transpiring, resistant to UV rays, to abrasion and wear, elastic.

### **CLEARSEAL**

Crystalline water based sealant and repellent, transparent for concrete, tiles, stones, masonry, etc.

### **SEALFLEX N**

Polyurethane sealant in a cartridge dispenser for sealing connections between different materials and sealing joints of different sizes.

### **FLEXSTRIP 80/120/150**

Butyl rubber adhesive strip for waterproofing connections between floor/walls and different materials.

### **FLEXSTRIP 250 COMBI**

hypalon elastic strip, fixed by structural bonding with EPOMATRIX epoxy paste, for waterproofing movement joints, horizontal and vertical.

# PUBLIC WORKS AND INFRASTRUCTURES

## NEW CONSTRUCTIONS



### PROBLEM

Permanent waterproofing of concrete structures to ensure their durability

Where: **tunnels, ports and areas in marine environments, car parks, bridges and flyovers, basins, reservoirs, dams, water treatment plants, tanks, swimming pools and hydraulic works in general.**



### SOLUTION

Crystalline waterproofed concrete end shotcret and further protection with water based crystalline and repellent penetrating liquids.

## PRODUCTS

### Waterproofing and protection of structures

#### **ADMIX (100/300 or ADMIXPLUS according to project and construction site requirements)**

Mass waterproofing admixture with crystalline action to be added to concrete in appropriate proportion.

#### **MULTISEAL**

Multifunctional, crystalline waterproofing liquid, water-based and ready to use, with excellent repellent, protective and anti-degradation properties for concrete.

#### **CRYSTALSPRAY**

Water based, transparent, crystalline product, spray applied, for drying and waterproofing concrete structures in a single application.

#### **CLEARON**

Transparent liquid membrane, one component, based on pure aliphatic polyurethane in aqueous solution, transpiring, resistant to UV rays, to abrasion and wear, elastic.

#### **INFRON**

White liquid protective membrane, one component, based on pure aliphatic polyurethane in aqueous solution, transpiring, resistant to UV rays, to abrasion and wear, elastic. Colorable with RAL system.

#### **ROOFON**

White liquid protective membrane, one component, based on pure aliphatic polyurethane in aqueous solution, transpiring, resistant to UV rays, with high elasticity. Colorable with RAL system.



# PUBLIC WORKS AND INFRASTRUCTURES

## REPAIR OF EXISTING WORKS



### PROBLEM

Reconstruction of the surface of degraded concrete, anti-corrosion passivation of the exposed reinforcing rods, stopping carbonation, stopping flaking caused by freeze/thaw cycles and protecting from attacks by external chemical agents.

Where: **reservoirs, dams, water treatment plants, tanks, swimming pools and hydraulic structures in general.**

### SOLUTION

Alkalizing agents, migrating corrosion inhibitors, waterproofing thixotropic and pourable with crystalline properties.

## PRODUCTS

### CRYSTALMIX

Waterproofing, crystalline, one-component, cement-based mortar quick-binding, high strength, expansive and non-shrinking.

### CRYSTALGUARD

Deep penetrating waterproofing, one-component, cement-based crystalline product. Mixed with water and applied as a coating in form of slurry to concrete, either on positive or negative side with respect to the hydraulic pressure.

### BONDPLAST

Multipurpose mixture, with a high content of solid polymers in dispersion, for waterproofing plasters and mortars: it improves their adhesion to the substrate and their strength, gives them excellent resistance to atmospheric agents and reduces shrinkage cracking.

### RENOV STEEL

One-component, anti-corrosion, passivating product for oxidized reinforcing rods.

### RENOV TREAT

migrating corrosion inhibitor applied to concrete as preventive measure to inhibit oxidation of reinforcing rods.

### RENOV TIX

Thixotropic, non-shrink, structural cement mortar, fibre-reinforced.

### RENOV COL

Pourable, non-shrink, structural cement mortar for precision grouting.

### MULTISEAL

Multifunctional, crystalline waterproofing liquid, water-based and ready to use, with excellent repellent, protective and anti-degradation properties for concrete.

# INDUSTRIAL CONCRETE FLOORS



## PROBLEM

Integral waterproofing, reduction of shrinkage cracking, increase of surface resistance, hardening expansion joints sections, dust-proofing, etc.

Where: **internal and external industrial floorings.**



## SOLUTION

Addition of admixtures to concrete: crystalline waterproofing, epoxy polyurethane polypropylene non-shrink fibres, dust hardeners; elastomeric sealants for joints, anti-quarz surface hardening treatments

## PRODUCTS

### Protection of structures

#### **ADMIX (100/300 or ADMIXPLUS according to project and construction site requirements)**

Mass waterproofing admixture with crystalline action to be added to concrete in appropriate proportion.

#### **BETONFIBRE SS-180**

Polypropylene multi-filament fibres, to reduce concrete shrinkage.

#### **QUARZWEAR**

Surface hardening powder composed of the hardest minerals on the Mohs scale

#### **HARDSEAL**

Crystalline one-component product, transparent and water-based, acting as hardener, sealant and permanent dust-proof for concrete floors. It protects floors from deterioration and from oils, grease or other contaminants; it neutralizes alkalis and improves the floor's adhesion characteristics for subsequent coatings

#### **MULTISEAL**

Multifunctional, crystalline waterproofing liquid, water-based and ready to use, with excellent repellent, protective and anti-degradation properties for concrete.

#### **SEALFLEX S**

Epoxy-polyurethane sealant with high adhesive capacity and excellent resistance to structural movement.

# DAMP, CONDENSATION AND MOULD



## PROBLEM

Capillary rising damp; plaster, paints and coatings detached from substrate; moulds, fungi, algae and lichens, etc.

Where: **walls, ceilings**, etc.



## SOLUTION

Chemical barrier applied by injection at the foot of the wall; anti-condensation dehumidifying plasters; anti-mould treatments, etc.

## PRODUCTS

### MULTISEAL

Multifunctional, crystalline waterproofing liquid, water-based and ready to use, with excellent repellent, protective and anti-degradation properties for concrete.

### CRYSTALSPRAY

Water based, transparent, crystalline product, spray applied, for drying and waterproofing concrete structures in a single application.

### CLEARSEAL

Crystalline water based sealant and repellent, transparent for concrete, tiles, stones, masonry, etc.

### BONDPLAST

Multipurpose mixture, with a high content of solid polymers in dispersion, for waterproofing plasters and mortars: it improves their adhesion to the substrate and their strength, gives them excellent resistance to atmospheric agents and reduces shrinkage cracking.

### DRYWALL

Water repellent based on an aqueous solution of potassium methylsiliconate used to create a chemical barrier against capillary water rise in stone or masonry walls.

### INTOSAN

Macro-porous, dehumidifying, anti-condensation plaster for the restoration of damp walls

### MILDEW CLEANER

Acid detergent specifically designed for the rapid removal of moulds and lichens from wall surfaces

### MILDEW REMOVER

Ecological anti-mould treatment for the permanent eradication of hyphae from wall surfaces

### PAINTHERM

Transpirant, thermal paint filled with hollow glass microspheres specifically designed for treating and preventing mould and condensation on cold wall surfaces



# LABORATORY TESTS

## ADDITIVES

### **US Army Corps of Engineers CRD C48-73, "Permeability of Concrete", Bureau Veritas**

Samples of concrete containing SUPERSHIELD ADMIX to 2% and an untreated reference sample were tested for water permeability. Both samples were subjected to a pressure of 12 bars (1.2MPa). The results demonstrated that the water and humidity had completely permeated the untreated sample after 24 hours. By contrast, the samples treated with Supershield Admix displayed no leaks, and the water had only penetrated to a depth of 1.5 mm after 72 hours (3 days).

### **Assessment of the impermeability to water of concrete samples treated with Supershield Admix compared with a control sample and with one treated with a rival product, in accordance with the UNI EN12390 standard - Engineering Controls Srl, Italy**

Concrete samples treated with Supershield Admix did not display any water leakage during the entire 72-hour duration of the test at a pressure of 5 bars. The resistance to water penetration of concrete treated with Supershield Admix was 84% higher than that of the control sample, whilst it was equal to that of the rival sample; however, in that sample the proportion of the product was twice that of the Supershield Admix.

### **Assessment of the impermeability to water of concrete samples treated with Supershield Admix compared with a control sample and one treated with the rival product, in accordance with the DIN 1048 standard - Bureau Veritas**

Concrete samples treated with Supershield Admix were tested for 72 hours in accordance with the DIN 1048 standard and compared with the control sample and that treated with the rival product to determine their impermeability to water. The samples treated with Supershield Admix displayed an average water penetration of 2 mm; this was 84% less than that shown by the control sample. In terms of increased performance, the samples treated with Supershield Admix displayed a 35% better result compared to the sample treated with the rival product and a 512% increase compared to the control sample.

### **Petrographic examination of hardened concrete in accordance with the ASTM standard C856-88-GSI**

The pores in the concrete sample treated with Supershield Admix were completely filled with needle-shaped crystal structures, as demonstrated by the BSE images taken with a scanning electron microscope (SEM).

### **Research on the self-sealing capacity of concrete treated with Supershield Admix - Pelorus**

Active leaks through cracks in a concrete wall which had been treated with Supershield Admix had self-sealed. A sample of concrete extracted from the area of the crack and examined under a scanning electron microscope (SEM) demonstrated the development of needle-shaped crystals within the wall where the crack had formed; these stopped the leak.

### **Rapid penetration of chloride ions in concrete treated with Supershield Admix in accordance with the ASTM standard C1202-03 - Bureau Veritas**

Under standard test methodologies for the electrical indication of concrete's ability to resist chloride ion penetration, the results demonstrated that the resistance to chloride ion penetration in the concrete treated with Supershield Admix was 70% greater than in the control sample, proving that concrete treated with Supershield Admix has a high resistance to chloride ion penetration.

### **Testing of drinking water in accordance with Legislative Decree no. 31-2001 - Engineering Controls Srl**

Drinking water which had been placed in contact with concrete samples treated with Supershield Admix did not contain levels of trace elements in excess of those specified by current regulations, after the appropriate washes. Thus these products may be used to treat concrete which is in contact with drinking water. The product complies with the parameters of D.M. 174/2004 annex II for products in contact with potable water.

### **Testing Supershield Admix in contact with potable water in compliance to norms NSF/ANSI Standard 61**

The product passed tests C- Taste of water extracts, D- Appearance of water extract, E- growth of aquatic micro-organism, F- cytotoxic activity of water extract, G- mutagenic activity of water extract, H- extraction of metals as per the requirements of the standard at an exposure of 15.000 mm<sup>2</sup> per litre.

## COATINGS

### **Permeability of concrete and self-sealing capability of Crystalguard and Crystalguard Ultima, US Army Corps of Engineers (USACE) CRD C48-92, Bureau Veritas**

Samples of concrete coated with Supershield Crystalguard and Crystalguard Ultima to a thickness of 51 mm and an untreated reference sample were tested for water permeability and the ability to self-seal. Both samples were subjected to a pressure of 12 bars (1.2MPa). The samples treated with Supershield Crystalguard and Crystalguard Ultima, from which water was leaking initially, self-sealed and dried completely as a result of the crystallization process, whilst the untreated sample had heavy losses throughout the entire observed duration of the test

## **Permeability of concrete at negative pressure and self-sealing capability, US Army Corps of Engineers (USACE) CRD C48-92, Bureau Veritas**

Samples of concrete coated with Supershield Crystalguard and Crystalguard Ultima to a thickness of 51 mm and an untreated reference sample were tested for water permeability from the negative side (that not treated with the product) and for their ability to self-seal. Both samples were subjected to a pressure of 12 bars (1.2MPa). The samples treated with Supershield Crystalguard and Crystalguard Ultima, from which water was leaking initially, self-sealed and had completely dried through the effects of the crystallization process, whilst the untreated sample had heavy losses throughout the entire observed duration of the test.

## **Rapid penetration of chloride ions into the concrete treated with Supershield Crystalguard and Crystalguard Ultima in accordance with the ASTM standard C1202-03 - Bureau Veritas**

Under standard test methodologies for the electrical indication of concrete's ability to resist chloride ion penetration, the results demonstrated that the resistance to chloride ion penetration of the concrete treated with Supershield Crystalguard and Crystalguard Ultima was 105% greater than that of the control sample, proving that concrete treated with Supershield Crystalguard and Crystalguard Ultima has a high resistance to the chloride ion penetration.

## **Proof of effectiveness of the use of Supershield Crystalguard and Supershield Crystalguard Ultima when applied to the concrete on the negative side of the pressure - Pelorus**

The test showed that when such products are applied to concrete which is wet or has active leaks (from the negative side with respect to pressure), moisture and leaks quickly dry up. Furthermore, analysis under the scanning electronic microscope (SEM) has shown that the structure of the crystals generated by the two products are different; the crystals developed by Crystalguard Ultima in the body of the concrete penetrate further and more rapidly than those generated by Crystalguard.

## **Testing of drinking water in accordance with Legislative Decree no. 31-2001 - Engineering Controls Srl**

Drinking water which had been placed in contact with concrete samples treated with Supershield Crystalguard and Crystalguard Ultima did not contain levels of trace elements in excess of those specified by current regulations, after the appropriate washes. Thus these products may be used to treat concrete which is in contact with drinking water.

The product complies with the parameters of D.M. 174/2004 annex II for products in contact with potable water.

# **MULTISEAL**

## **Assessment of the impermeability to water of concrete samples treated with Supershield Multiseal and control samples in accordance with the DIN 1048 standard - Bureau Veritas**

Samples of concrete treated with Supershield Multiseal were tested for 72 hours in accordance with the DIN 1048 standard and compared with the control sample to determine their impermeability to water. The samples treated with Supershield Multiseal displayed a result which was 113% better than the control sample.

## **Petrographic examination of the hardened concrete in accordance with ASTM standard C856-88 - Pelorus**

The pores in the concrete sample treated with Supershield Multiseal were completely filled with crystalline needle-shaped structures, as was demonstrated by the analysis conducted with the scanning electron microscope (SEM)

Rapid penetration of chloride ions in the concrete treated with Supershield Multiseal in accordance with ASTM standard C1202-03 - Bureau Veritas

Under standard test methodologies for the electrical indication of concrete's ability to resist chloride ion penetration, the results demonstrated that the resistance to chloride ion penetration in the concrete treated with Supershield Multiseal was 112% greater than in the control sample, proving that concrete treated with Supershield Multiseal has a high resistance to chloride ion penetration.

## **Test of resistance to freezing/thawing in accordance with the ASTM standard C666**

After 300 cycles of freezing/thawing the samples of concrete treated with Supershield Multiseal displayed a higher resistance than the control sample.

## **Chemical resistance of the mortars in accordance with the ASTM standard C267-77**

Concrete cylinders treated with Supershield Multiseal and untreated cylinders were exposed to hydrochloric acid, caustic soda, toluene, mineral oil, ethylene glycol, chlorine for swimming pools, brake fluid and other chemical products. The results demonstrated that exposure to, and contact with, these chemicals did not have any detrimental effect on the samples treated with Supershield Multiseal.

## **Test of resistance to sulphuric acid**

Concrete samples treated with Supershield MULTISEAL and comparison samples were tested for their resistance to sulphuric acid. After having been immersed in sulphuric acid, both samples were checked daily for weight loss, until either a weight loss of 50% or a definitive trend in the response to treatment was identified. The weight loss of the samples treated with Supershield Multiseal was significantly less than that of the reference samples.

## **Resistance to petroleum derivatives**

Samples of concrete treated with Supershield Multiseal and control samples were tested for their resistance to petroleum derivatives. After immersion in petroleum products (gasoline, diesel, oil), the samples were checked for weight loss. The percentage weight loss of samples treated with Supershield Multiseal was significantly lower than that of the untreated control samples.

## **Potability test in accordance to D.L. 31-2001 - Engineering Controls**

Drinking water placed in contact with concrete samples treated with Supershield MULTISEAL 200 and MULTISEAL 100 did not contain elements exceeding the values specified by the regulations, after the appropriate washes.

The products comply with the parameters of D.M. 174/2004 annex II for products in contact with potable water.

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