



HYFIX

CHEMICAL WATERPROOFING SYSTEM FOR CONCRETE

- Applicable under any weather condition suitable for concrete works
- Does not require a primer or a protection layer
- Reactive and self-healing
- Can be applied from both Positive and Negative hydrostatic pressure sides

DESCRIPTION

HYFIX is uniquely formulated to form water blocking Nano-Minerals™ via reacting with natural by-products created by the cement hydration process and excess water. These minerals form an impermeable structure due to their strong physical and chemical bond with the concrete matrix sealing the structure permanently against water. **HYFIX** Chemical Waterproofing System is applicable both from the positive and negative hydrostatic pressure sides.

HYFIX Nano Minerals™ not only prevent the harmful effects caused by Chloride and Sulphate ions but also protect the reinforcing bars from corrosion and carbonation. Smart Nano Minerals™ embodied in the concrete matrix are formulated to reactivate in the presence of water to heal the occurring hairline cracks in the concrete prolonging the structure's service life.

TYPICAL APPLICATIONS

HYFIX is recommended for use in a wide range of waterproofing applications including but not limited to; below grade concrete and foundation works, cement based screed or plastering works for use from both positive and negative hydrostatic pressure sides. Examples of such applications are;

- Foundations
- Water Tanks
- Waste Water Refining Facilities
- Construction Joints
- Dams
- Bearing Walls
- Ports
- Elevator Buckets
- Shipyards
- Underground Slabs
- Facade Furring
- Retaining Walls
- Tunnels
- Highway Bridges
- Culverts
- Railway Bridges
- Ponds

ADVANTAGES

- Unlike conventional membrane and brush applied products that suffer from irreparable damages caused by naturally occurring cracks and deterioration on lean concrete due to increasing structural loads and thus lose its functionality; **HYFIX** dry-sprinkle application provides a seamless watertight body in the foundation of the structure. **HYFIX** molecules become reactive through contingency with water and bond with water molecules to form Nano-Minerals™ providing permanent waterproofing and thus ensuring and prolonging the service life of the concrete.
- **HYFIX** guards the reinforcing bars from Chloride attack by actively targeting chloride carrying water molecules and blocking them to form Nano-Minerals™, adding to the durability of the system.
- Sulphate attack in concrete is a dangerous reaction where sulphate ions bond with the free agents and aluminates in the concrete body to form massively expanding salts. These formations cause tensile stress in the concrete substrate that inevitably lead to cracking and deterioration the concrete. **HYFIX** blocks penetration of sulphate ions and thus protects the integrity of the concrete structure.
- **HYFIX** Nano-Minerals™ actively heals the concrete, sealing static hairline cracks up to 0.5mm.
- **HYFIX** is an inorganic compound that has no adverse effects on the compressive strength of the concrete.
- **HYFIX** is as effective from the negative hydrostatic pressure as it is from the positive hydrostatic pressure.

- **HYFIX** is very efficient against humidity, Nano-Minerals™ acting as barriers will prevent any mold and mildew formation effectively in structures.
- **HYFIX** is inorganic and insoluble, bonding with the concrete matrix and unlike organic bitumen products, will not be subjected to bacterial deterioration.
- **HYFIX** insulating Nano-Mineral™ body does not depend on the integrity of the seams whereas for conventional systems a flaw or deterioration would be fatal, rendering system failure.
- **HYFIX**'s trusted water impermeability is not affected by surface bonding strength like bitumen based products.
- **HYFIX** can be used under any weather condition that is suitable for concrete works.
- **HYFIX** is not affected by U.V and oxidation.
- **HYFIX** doesn't require a primer prior to or protection layer after the application.

TECHNICAL PROPERTIES

Color: Gray, red
Density: 1.93 kg/lit ±0.05
Initial Set: 60 min.
Pot Life: 40 min.

COMPOSITION

- Active chemicals in **HYFIX** react with water and by-products of hydration process in the concrete, to form insoluble symmetric Nano-Minerals™.
- Activated with presence of water, **HYFIX** molecules are carried deep into the concrete matrix by means of diffusion, osmosis and Brownian movements.
- By means of these recurrent reactions, **HYFIX** molecules efficiently heal the concrete matrix, Nano Minerals™ reactivate and to fill the pores and capillary tracts in presence of water or moisture.

DIRECTIONS FOR USE

HYFIX has 3 application systems.

1. Dry-Sprinkle Application
2. Slurry Application
3. Brush Application

PRIOR TO CASTING:

Foundations

- Dry-sprinkle **HYFIX** at a rate of 3 kg/m² prior to concrete casting, after blinding concrete has set, reinforcing bars are fixed and formworks are completed. In order to achieve a homogenous distribution, a bag of **HYFIX** (20 kg) shall be dry-sprinkled over each a 3x2 m (6 m²) grid.

Cold Joints

- Prepare slurry with **HYFIX**, adding 20 kg **HYFIX** to 6 lt. of water. The slurry is applied onto horizontal and vertical cold joints before sealing the formwork.

HYDRATED CONCRETE

- Saturate the surface with water, but any standing water should be removed.

HYFIX

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- Mix 1 bag of **HYFIX** (20kg) with 7.5 lt water (water/powder rate by volume: 1/2.5).
- Apply the mixture at a rate of 2 kg/m² in 2 layers (first layer red, second layer gray).

Concrete Bearing Walls

- Surfaces to be treated must be free from dust, oil, grease, artificial curing agents, or any previous surface treatment since existence of such will impair adhesion of the **HYFIX** coating, or inhibit penetration of the **HYFIX** molecules into the surface.
- Repair all segregated areas, tie rod holes, horizontal and vertical fillets with **HYFIX EXPAN**.
- Apply **HYFIX** Slurry with a brush from the positive side whenever possible.
- Apply **HYFIX** Slurry from the negative side if application from the positive side is not possible or for existing structures where there is a humidity or water leakage problem.
- As a precaution against segregation at **HYFIX ADMIX** applications, it is recommended to use **HYFIX** Slurry Brush Application from the negative side.

CURING

- **HYFIX** applied surfaces shall be kept moist and should be immediately cured with water if surface does not have direct contact with water. This process should continue at least for 4-5 days under normal temperatures. Curing is important to increase activation and effectiveness of chemicals in the **HYFIX** compound, also reducing the time needed to obtain a waterproof concrete body.
- Mist spraying with water and covering with a moisturized blanket is an effective curing technique for **HYFIX**. It is not suitable to use curing materials with **HYFIX**.

WATCHPOINTS

- In case materials like paint, ceramic or tiles is desired, **HYFIX** applied surfaces shall be cleaned with diluted sodium hypochlorite solution after curing is completed. In order to achieve a smooth surface, walls should be rendered for paint application, however tile adhesives may be applied directly.
- Slurry form of **HYFIX** acts only as a bridge for nano-minerals to penetrate into the application surface thus removal of the slurry does not affect **HYFIX**'s waterproofing properties.
- In cold joint applications, fillets should be prepared with **HYFIX EXPAN**. **HYFIX** slurry should be applied on fillets which should be followed by **HYFIX** Brush Application.
- Do not extra water or powder into the mixture.

PACKAGING

20 kg craft bag

STORAGE AND SHELF LIFE

Store in dry and cool locations. Shelf life is 12 months under suitable storage conditions.

HEALTH AND SAFETY

As with all chemical products care should be taken during use and storage. Avoid contact with food, skin, clothes, eyes and mouth. If accidentally ingested seek immediate medical attention. Should be kept away from children and animals. Reseal containers after use. Chemicals compounds may cause damage, clean spillage immediately.

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