

TECHNICAL DATA SHEET

Concrete Waterproofing Admixture

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BE SURE. BE KRYTON.

Krystol Internal Membrane™ (KIM®)

DESCRIPTION

Krystol Internal membrane (KIM) is a chemical admixture in dry powdered form effective in creating waterproof concrete. KIM is the STANDARD used for qualifying Permeability Reducing Admixture - Hydrostatic Conditions as specified by 'ACI 212' (Highest Grade of Permeability Reducing Admixture). KIM is used in place of externally applied surface membranes to protect against moisture transmission, chemical attack and corrosion of reinforcing steel.

When combined with fresh concrete, Kryton's unique and proven Krystol® technology reacts with un-hydrated cement particles to form millions of needle-like crystals. These crystals grow in a catalytic reaction, filling the naturally occurring pores and voids in concrete, and permanently blocking the pathways for water and waterborne contaminants. Later, if cracks form due to settling or shrinkage, incoming water triggers the crystallization process and additional crystals form, filling cracks and ensuring that the structure's waterproofing barrier is maintained and protected.

In addition to filling the pores and capillaries of the concrete matrix with crystals, KIM enhances the natural hydration process by intensifying and prolonging the hydration of the cementing materials. This reduces the size and number of capillary pores within the concrete matrix, making it dramatically less porous, and improving strength and durability characteristics.

FEATURES

- **KIM** is the **STANDARD** for Permeability Reducing Admixture - Hydrostatic Conditions as Specified by 'ACI212'
- **ONLY Crystalline Waterproofing Admixture** with **BIS Certification** for use in **India**
- Reduces Chemical Attack by deleterious materials
- **Significantly** decreases **Corrosion** of Steel in the RCC
- Replaces unreliable exterior membranes, liners and coatings
- Added directly to ready-mix truck or at batch plant, no mixing with water or additional step of premix with water required
- Self-seals hairline cracks up to 0.5 mm (0.02 in.) - **Best in Industry**
- Reactivates in the presence of moisture
- Effective against hydrostatic pressure up to 140 m (460 ft.) of head pressure - **Best in Industry**
- Waterproofs from any direction (i.e. positive or negative side)
- Impervious to physical damage and deterioration
- Safe for contact with potable water, certified by NSF/ANSI Standard 61 Drinking Water System Components Health Effects
- **Significantly** reduces permeability and concrete shrinkage and cracking - **Best in Industry**
- Provides excellent resistance to waterborne chemicals such as sulfates, chlorides & acids
- Compatible with self-compacting concrete (SCC)



Kryton Buildmat Co. Pvt. Ltd.

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For Supplies please contact:

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KEY BENEFITS

- Increases durability of concrete
- Increases reliability and quality control
- Shaves weeks off the construction schedule
- Reduces the cost of maintenance and repair
- Excellent performance

RECOMMENDED USES

KIM is ideal for permanent protection of all concrete that will be subject to water pressure, such as:

- Below grade parking structures, basements, elevator pits and foundations of high-rise towers
- Recreational facilities such as aquatic centers, aquariums, zoos, water parks and marinas
- Architectural water features such as fountains and waterfalls
- Water containment reservoirs, water treatment tanks, sewage tanks, manholes, traffic tunnels, below grade pipelines and subway tunnels and marine structures
- Bridges, dams and highway infrastructure
- Concrete homes including basements, foundations, swimming pools, decks, bathrooms, garages and exteriors
- Properly designed roof tops and plaza decks
- Shotcreting

PHYSICAL PROPERTIES

Appearance	Gray Powder
Bulk Density g/cm ³	~1.4

PLASTIC PROPERTIES

KIM typically delays the setting time of the concrete. Consult a Kryton Representative to ensure proper compatibility with concrete admixtures. It can be used for most common applications and is compatible with common admixtures such as plasticizers, accelerators, retarders and air-entrainers.

WORKABILITY

ASTM C143 - Standard Test Method for Slump of Hydraulic Cement Concrete

KIM enhances the workability and plastic properties of concrete in many ways. KIM Provides a plasticizing effect at low and high slumps. KIM works very well with superplasticizers to achieve high slumps for long pumping distances without segregation.

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HARDENED PROPERTIES

Hardened Properties	Test Reference	KIM Performance
Coefficient of Water Permeability	Taywood/Valenta	Reduced 70%
Drying Shrinkage	BS 1881-5	Reduced 25%
Freeze/Thaw Expansion	BS 5075-2	Reduced 87%
Compressive Strength (28 Days)	BS EN 12390-3	Increased 8%
Flexural Strength (28 Days)	BS EN 12390-5	Increased 7%
Modulus of Elasticity	BS 1881-122	Increased 16%

British Board of Agreement (2005), Certificate No 05/4217

KIM-HS is marketed in India as KIM

DOSAGE

- 0.8% by weight of cement. This rate may vary from 0.8% - 2% depending on site requirements and minimum cement content
- Please consult a Kryton Representative to determine recommended dosage rate. Trial tests are required to determine actual plastic properties

APPLICATION

KIM can be mixed directly dry into wet concrete. It DOES not require pre-wetting or mixing into slurry prior to adding to Ready Mix Concrete. The dry application ensures that your w/c ratio in concrete is maintained and the durability and strength gain are as designed.

KIM can be added either directly to the central mixer in the plant or into the drum of a transit mixer. A mixing time of at 3-5 minutes should be sufficient depending on mix speed. The concrete should then be transferred to the pour location and poured in accordance with BIS or ACI requirements. Proper curing is essential to achieve the performance and benefits KIM. Cure in accordance with ACI 308.1 guidelines.

LIMITATIONS

KIM is an effective waterproofing system for rigid concrete structures and may not reliably seal cracks and joints experiencing variable loading or repeated movement. For terraces experiencing light loads, KIM combined with Kryton Joint System is an acceptable application. Please consult a Kryton Representative for the Krystol® waterproofing system that best suits your project. In applications that have variable load and repeating movement KIM may be used as a secondary waterproofing system.

SAFETY

For professional use only. This product becomes caustic when mixed with water or perspiration. Avoid contact with skin or eyes. Avoid breathing dust. Wear long sleeves, safety goggles and impervious gloves.

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PACKAGING

- 25 kg resealable pails
- 20 kg bags

SHELF LIFE

KIM has a shelf life of 2 years for unopened pails and 4 weeks for properly resealed pails, for dry bags 6 months

WARRANTY

Kryton Buildmat Co. Pvt. Ltd. (A Unit of Kryton, Canada) warrants that its products are free from manufacturer's defects and, when applied in accordance with the current specifications and application instructions will perform as stated in its product literature. Because methods and conditions of use are beyond the control of Kryton, no guarantee, expressed or implied can be given as to the results of application. Liability of Kryton shall be limited to replacement of materials proved defective or, at its option, refund of the purchase price of the product.

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