

☐ Geo Polymer Cement ☐ Company Profile ☐ New Products ☐ Intelligent Roofs

August' 09 Vol.11 No.8 Rs.70/-



An Ark Venture

THE Masterbuilder

INDIA'S PREMIER CONSTRUCTION MAGAZINE

www.masterbuilder.co.in

Waterproofing Solutions

Tunnel Waterproofing
Waterproofing of Roofs
Bentonite Geotextile Waterproofing
Crystalline Waterproofing Systems
Integral Capillary Concrete Waterproofing Systems

Green & Intelligent Building

- Building Automation: Are We Ready ?
- Interview with Ar. C.N. Raghavendran
- Intelligent Building: Ebene Tower: A Case Study
- Green Building Material Catalogue
- PEB: With Different Innovation
- IGBC: Green Building Congress '09

Can We Learn from the Metro Disaster ?



Kryton: The Name that is Synonymous with Waterproofing Solutions

Founded in the year 1973, Kryton develops, manufactures and markets a wide range of products designed to waterproof, repair and protect concrete structures. The company has offices, agents and manufacturing facilities around the world. Kryton is a leader in waterproofing solutions and its Krystol Concrete Waterproofing System, which was developed 35 years back, holds the sway in waterproofing solutions.

Kryton Buildmat Co. Pvt. Ltd. (KBCPL), India is a subsidiary company of Kryton Holding Inc. of Canada that specialises in developing, manufacturing and distributing speciality protection products for construction, improvement and repair of industrial, commercial as well as home projects. The Masterbuilder spoke to Mr. Akhil Kakkar, General Manager - South Asia, about its crystalline waterproofing solutions and here are the excerpts.

Tell us about your crystalline concrete waterproofing solution

We at Kryton, have developed a technology to replace the traditional external membrane systems that are used for waterproofing the concrete tanked structures.

It is called Krystol Internal Membrane (KIM), which is a crystalline waterproofing product. When added to a concrete mixture, KIM creates a chemical reaction that causes long, narrow crystals to form, filling pores, capillaries and hairline cracks in concrete. By blocking passageways within concrete, these crystals permanently prevent the movement of water in all directions, thus effectively preventing water leakage.



Mr. Akhil Kakkar
General Manager - South Asia
Kryton Buildmat Co. Pvt. Ltd.

What are the components of KIM? How to use it?

KIM is basically an easy-to-use, dry powder comprised of Portland cement, silica sand and Krystol chemicals.

Using KIM is very easy. All that we have to do is, add KIM to the ready mix concrete truck at the plant or jobsite to create a powerful moisture barrier in slabs, walls and construction joints. There is no need for any sort of surface application at the construction site.

But if we add KIM to the concrete directly, wouldn't it affect the workability and strength of the concrete?

KIM improves concrete's workability and pumpability during construction, reducing large air pockets that weaken concrete and entraining air (creating small, uniform air bubbles) to protect against freeze-thaw damage. By reducing premature moisture loss KIM helps to strengthen concrete and reduce shrinkage and cracking during the curing process.

Joints are the most vulnerable to leaks. Is KIM effective in preventing the leaks along the joints?

Yes. KIM is very effective in preventing leakages from joints. Until recently, the best option for waterproofing joints was to place a plastic barrier or bentonite strip into the joint before an adjoining wall was poured. This method can be unreliable; however, since physical barriers easily become

dislodged or damaged during subsequent concrete pours, rendering them ineffective and leaving joints susceptible to leakage.

But what we do is, to treat the construction joints, a groove is made along it and it is filled up with Krystol T1 and Krystol Baricote. This is highly effective to prevent the leakages along the joints.

Can we use this KIM on already existing concrete structures? If so, how?

Even if a tanked structure is already complete, it's not too late for owners and operators to take advantage of the benefits of crystalline waterproofing. Krystol technology is also available as a surface treatment. The Krystol T1/T2 Concrete Waterproofing Treatment is brush-applied to existing concrete structures to repair existing cracks, fortify and waterproof concrete and protect against contamination and steel reinforcement corrosion.

After application, chemicals from Krystol T1/T2 are absorbed into the concrete by capillary action and diffusion. Once inside the concrete, the chemicals begin growing crystals and filling the spaces between concrete particles. The majority of active crystalline chemicals migrate into the concrete within the first 28 days, meaning the surface-applied slurry can be completely removed from the surface after this time without impacting its waterproofing properties.

What is so very unique about KIM?

KIM has 'self-seal' properties. As long as moisture remains present, KIM crystals will continue to grow throughout the concrete, reaching lengths of many inches over days, weeks or months. Once the concrete dries, Krystol technology sits dormant until the next dose of water causes the chemical reaction to begin again.

The ability to remain dormant and reactivate in the presence of water gives KIM-treated concrete the ability to "self-seal". When cracks form, water entering through these cracks reacts with the dormant chemicals causing new crystals to form and grow, blocking the cracks and stopping the migration of water. KIM's ability to self-seal cracks dramatically reduces maintenance and repair costs over the life of the structure.

How cost effective is this technology?

Because KIM is added right to the concrete mix, there is no need for any kind of surface application. The cost of the admixture is more than offset by the cost savings realized by eliminating the time and labour required to apply membranes. Also, by using KIM, we can eliminate the huge costs involved in maintenance and repair of cracks and leaks in the structure. KIM is basically just a one time investment, and hence, cost effective.

How safe is KIM? Does it produce any toxic effects?

KIM is certified non-toxic by NSF International, a widely respected third-party certification provider that develops national standards for food, indoor air, the environment and water. KIM is safe for use in structures where potable water is stored.

In fact, KIM halts the migration of waterborne contaminants such as chemicals, chlorides, sulphates and silt, protecting the integrity and purity of potable (drinking) water in water containment structures by permanently blocking water penetration from all directions.

How long does KIM last? Do you provide any warranty?

Unlike external waterproofing membranes, KIM is guaranteed to last the lifetime of the structure. Where membranes can be scraped, punctured or torn, KIM is impervious to physical damage. Even years later, its crystals remain, blocking water and self-sealing cracks. Backed by Kryton's unprecedented 10 and 25-year material warranties, the Krystol Concrete Waterproofing System has been tested and proven in major projects worldwide.

Typical usages:

This waterproofing solution can be typically used for reservoirs, underground tanks, sewage and water treatment tanks, aquariums, base slabs, diaphragm walls, concrete roofs, bathrooms, traffic bearing structures, tunnels, foundations, elevator shafts etc. □