



CICO®

CICO News
Jan-March 2011

CICO WORLD

Happy New Year 2011

Dear members of CICO family,

Yet another year and another decade has passed by. I can say with immense pride that CICO has grown from strength to strength and we are still evolving as an organization and as individuals.

This year we are focused on strengthening our sales and upgrading our manufacturing units, in order to service our customers better. We are also looking forward to building new business relationship and strengthening the old. Our motto "We Systematically Strive to Enhance the Value of our Customers' Result" remains special to us as we will be launching new and versatile products. We also believe that we will be able to concentrate on increasing our reach in various parts of the country as has been the vision of the company-while we also foray into overseas markets.

My sincerest thanks to all of you who have been so much a part of our growth and without whom we would never have achieved our goals within the value structure that we have woven for ourselves. Thank you for your invaluable support. I would like to take this opportunity to wish you and your loved ones a very happy, healthy and peaceful 2011.

Yours sincerely,

Anasuya Gupta

KARAIKAL ENGINEERS & BUILDERS ASSOCIATION EXHIBITION



CTL, Chennai has participated in KEBA 2011 (Karaikal Engineers & Builders Association Exhibition) at Karaikal, Tamil Nadu from 7th January 2011 to 9th January 2011. Basically, a building materials exhibition, this event was first time organized in Karaikal. Major builders, contractors and local public visited the stall. This event was organised by Trichy branch of Gillanders Arbuthnot & Co. Ltd. with the association of local dealer M/S Dheen Hardwares. CTL, Chennai has given thrust mainly to Tapecrete P-151, CICO Super, CICO No. 3 & Crackseal. Overall response was positive.



TECHNICAL SEMINAR, ANDHRA PRADESH

CTL, Chennai has conducted Technical Presentations at GMR Power Plant site at Rajamundry and GSPCL Project site at Kakinada, Andhra Pradesh on 19th & 20th November 2010 respectively for L&T officials.

Around 42 participants attended the seminar. Mr. Bijnan Parai-GM R&D, CICO Technologies Ltd. has given the presentation about CICO, its product range, usage areas, application methodology, advantages etc.

Overall the seminar was a grand success and this was a good platform for CTL to exhibit its products for the upcoming civil engineers.



PROPERTIES OF TAPECRETE -P151 AND THEIR USES vs. WATERPROOFING BY CRYSTALLIZATION

by Bijan Parai-GM R&D

Cementitious Polymer Coating

These products are available in three varieties. First and most common variety is a single component polymer emulsion (TAPECRETE -P151), which are to be mixed with cement at site to a brushable consistency. Second variety is a two-component system (TAPECRETE -RTU), one pack is in liquid form and other pack is in cement based powder form. When these two components are mixed together a slurry mix is obtained. All these slurry are mainly applied by brush on the substrate surface at the positive side of the water pressure. These products are very good water resistant and flexible in nature which will not crack due to thermal movement of the structure. The later type is based on special type of elastomeric polymer with substantial toughness and durability, hence more suitable where more temperature difference is present like open roof.

Polymeric cement based waterproofing system has special advantages over all other system considering their versatile properties, low maintenance cost, ease of applications, moisture vapour breathability, UV rays resistance and many more.

Brief Composition

TAPECRETE -P151 is water suspension of minute Acrylic Polymer in water. The rough composition of TAPECRETE -P151 Polymer about 30% and the rest is water. TAPECRETE -P151 is to be mixed with two times its weight of cement. Acrylic Polymer does not have any chemical reaction with cement but has a property of coalescing when the water suspension becomes dry. The two times by weight cement reacts with the 70% water and solidifies. The interstice of the particles get covered with acrylic polymer which when dries adheres with each other and leaves very minute pores through which water cannot pass. Thus the mixture of TAPECRETE -P151 and cement when dries allows water in vapour form to pass through the layer but does not allow water in liquid form to pass through it. The basis of waterproofing is in the form of a layer of TAPECRETE -P151 & cement mixture. The water permeability equivalence of the slurry layer is almost equivalent to 25 times that of good cement concrete. Thus a layer of TAPECRETE -P151 slurry of about 0.5mm in thickness is equivalent to about 13mm of good quality concrete (M-40 grade of concrete) cover.

The water content of the acrylic polymer suspension is such that the substrate where it is to be applied should not absorb any water from the TAPECRETE -P151 slurry. Thus for application of the TAPECRETE -P151 systems it is required that the substrate should be water saturated but in a surface dry condition. If the substrate has free water in some areas the concentration of water will be more and the effective water/cement ratio will be high leading to a low mechanical strength properties.

The membrane formed by TAPECRETE -P151-cement slurry is well bonded to the concrete substrate and has crack bridging capacity of 0.4 mm. This means that the membrane does not rupture if the crack width is less than 0.4 mm. A well designed RCC structure has crack width less than 0.3 mm. The crack bridging property of TAPECRETE -P151 -cement slurry membrane is due to the presence of acrylic polymer particles which are interconnected three dimensional networks like structure and does not rupture when the crack width is less than 0.4mm.

Other Crystallizing waterproofing products

This category of products has fluorosilicate and cement in specified quantities which is only known to the manufacturer. The fluorosilicate has a property of reacting with calcium hydroxide which is liberated from cement during the chemical reaction with water.

Fluorosilicate reacts with the liberated lime and forms calcium fluorosilicate which is crystalline in nature and the crystal formation in subject to grow larger in size while more calcium fluorosilicate is formed. These crystals fill up the interstices of the pores in concrete thus water can not pass through the pores.

These materials are to be mixed with specified amount of water so that the mixture can be applied by brush. The reaction rate of fluorosilicate with lime is low one thus when water is added to the powder the reaction being slow. Fluorosilicate remains in nascent form even in presence of liberated Ca(OH)_2 . To fill up the pores in the substrate it is necessary that the mixture should permeate in the hardened concrete which is more probable when the substrate is dry so that water containing both fluorosilicate and Ca(OH)_2 both of which are soluble in water can enter the pores of the substrate. The fluorosilicate is definitely more soluble in water than Ca(OH)_2 , thus the concentration of fluorosilicate is more inside the pores of concrete substrate.

The pores of the concrete substrate has liberated Ca(OH)_2 which reacts with the fluorosilicate and form crystalline calcium fluorosilicate, thereby sealing the voids of the pores.

If the substrate is saturated with water, there will be no penetration of the fluorosilicate mixture but due to difference in concentration these will be diffusion of the sodium fluorosilicate into the deeper layers. But the concentration will be less and not sufficient to form enough calcium fluorosilicate crystals to fill up the voids.

Thus there is a dilemma about the application methodology regarding wetness of the substrate.

The problem of fluorosilicate apart from the dilemmatic problem of application on wet or dry substrate is also associated on the side of substrate the face on which water is or will be present is known as the positive side, the face through which the water escapes is the negative side. For reasons which can be explained, the application of fluorosilicate type seals are better for application on the negative side. Thus the application of fluorosilicate based on the positive side does not function well. This explains why the performance of fluorosilicates on roof slab or toilet floor is not satisfactory on many occasions. Moreover the finish of substrate surface should be within a shallow band, it shall not be too smooth or too rough.

The TAPECRETE -P151 slurry application works on the basis of a formation of a highly impervious layer and when it is placed on the positive side, the layer resists in the flow of water. Moreover TAPECRETE -P151 slurry has better bonding property than fluorosilicate cum cement layer due to the high bond strength of the slurry layer.

The above comparative points explain the superior performance of TAPECRETE -P151 cum cement vis-a-vis the fluorosilicate crystal type of waterproofing sealer.

Additional Notes

Fluorosilicate has been used as dust formation preventors for concrete surfaces. The application was that of a mixture of fluorosilicate with water and this solution was kept on the surface where dust formation is to be prevented. The depth of the standing solution on the surface is about 2 to 3 mm and this was kept for about 3-4 days after which the floor was thoroughly flushed with water. Thus the surface had copious supply of fluorosilicate for 3-4 days and the liberated Ca(OH)_2 combined with the fluorosilicate to form the intercellular crystals which prevented dust formation.

A much older type of treatment was prevalent since early 20th Century. The solution which was applied was solution of sodium silicate commonly known as liquid glass. Cement concrete overhead tank, cement mortar drains were waterproofed by water soaked initially with weaker solution of liquid glass and after 3-4 days the concentration of standing solution was increased by adding more liquid glass which is highly soluble in water. The change of concentration was done 2 or 3 times, keeping in view whether water was coming out from the other face.

The application of sodium silicate was almost standard about 40 years back and references can be made to old edition of concrete/civil engineering hand book.

**New
Joining**

CICO Welcomes the new members of the CICO family

S.N.	Name	Designation	DOJ	POP
1	Mr. Narendra Kumar	ASM-Projects	02.11.2010	New Delhi
2	Mr. Sazzad Pasha	Accounts Assistant	09.11.2010	Bangalore Depot
3	Mr. Mohar Chatterjee	Executive Assistant (Corporate)	17.01.2011	New Delhi
4	Mr. Sandeep Kumar	ASM-Projects	17.01.2011	Chandigarh
5	Mr. Munindra Sharma	TSM-Distribution	21.01.2011	Agra
6	Mr. Satish Kumar Singh	TSM-Distribution	21.01.2011	Noida
7	Mr. Rahul Bhola	TSM-Distribution	01.02.2011	Chandigarh

MY BUILD, 2010, MYSORE

CTL, Bangaluru participated in MY BUILD 2010 held at Mysore on 11th December 2010. Most of the local builders, contractors, engineering college students and public visited the stall. There were lot of queries about repairs, leakage and dampness problems. All their doubts were answered.



MASON MEET, KALKAJI, NEW DELHI



With the association of our distributor M/s Shri Ram Enterprises and dealer M/s S.B. Traders, sales team of CICO Technologies Ltd., New Delhi



organized a mason meet at Kalkaji on 22nd December 2010. Around 60 masons and painters attended the meet. Products like CICO NO.1,2,3; Tapecrete P-151; TILFI, CICO Wallputty were demonstrated. All doubts raised by masons and painters were answered.