CHEMBOND
TechConnect

Chembonds exhibition booth at ACETECH 2011 Mumbai attracts excellent response

9 November 2011, MUMBAI – Chembond Chemicals Limited exhibited at The Economic Times ACETECH 2011 – an international exhibition and symposium on Architecture, Construction and Engineering. The event was held at The Bombay Exhibition Centre, Mumbai from 3rd to 6th of November 2011.

The booth erected for the purpose had on display a large part of Chembond's construction chemicals range of products. The 4 days event witnessed record footfalls and the Chembond booth attracted unprecedented interest and activity.

The stall was designed to offer visitors a closer look at the various products and solutions we provide. Cured samples of products and mock-ups were put up so that visitors could have a 'touch and feel' of solutions offered by us. While it was not an easy task to showcase our entire range of construction solutions like waterproofing, sealants, concrete admixtures, tile fixing adhesives, concrete repairs, injection grouts and cementitious flooring, we did manage to highlight the new solutions from each of these segments.

At the K-FIX wall in the booth we demonstrated the various areas of a typical construction in which our products are used. The K-FIX products are positioned at applicators, households and architects and are available in attractive, user-friendly packs in building material stores.

TechConnect - Technical bulletin for Construction Chemical division released

Chembond Chemicals Limited released the inaugural issue of TechConnect – a quarterly technical bulletin of construction chemical division. The issue was released at the obliging hands of Ms. Valsa R Nair Singh, Secretary, Dept. of Environment, Government of Maharashtra on 5th November 2011 at Chembond's exhibition stall at the ACETECH 2011 exhibition held in Mumbai.

TechConnect aims at sharing important information about the industry, practices and new products with engineers, consultants, designers, architects, developers and Chembond's business associates. It would provide information on the new and upcoming technologies in the field and would also disseminate information on appropriate construction practices to solve technical problems.

Mr. Nirmal Shah, Jt. MD and Ms. Valsa R Nair Singh,
Secretary, Dept. of Environment, Government of Maharashtra

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TECHNICAL BULLETIN
Issue 2 | Jan-March 2012

Dear Friends and Associates,

It gives me pleasure to present to you the 2nd issue of TechConnect – our quarterly technical bulletin on solutions for the construction industry. I also take this opportunity to thank you all for providing us with your views, feedback and suggestions to our inaugural issue. We have tried to incorporate most of the suggestions in this issue and shall continue to do so in our future issues.

In our previous issue we highlighted concrete crack repair solutions incorporating epoxy and polyurethane resin based products. In this issue we attempt to throw more light on construction joints and the importance of appropriate sealant selection for these joints.

From the new solutions stable, our product and solutions development team has introduced Kem Joint PU 100 – a single component moisture cured polyurethane sealant and Kem Gel EP – a multi-purpose epoxy adhesive and sealing compound. More information on these products is given in this issue.

As always, we hope you find this issue informative and earnestly solicit your feedback and suggestions. You can write to us at: editor.techconnect@chembondindia.com

With warm regards,

Nirmal V. Shah
Joint Managing Director
Chembond Chemicals Limited

Joint Sealants

One of the most essential materials for making the building envelope waterproof is the joint sealant. Joints are there invariably in all civil construction. According to material of construction, there are different kinds of joints. Some are only for joining, some are for accommodating the movements. Movements are mainly because of thermal gradients caused by temperature variations. There are also movements due to seismic activity, settlement, shrinkage, creep and dynamic loads, temperature variations due to processes etc.

All joints which are formed due to above reasons must be properly sealed, monitored and maintained. This is essential to protect the structures from ingress of foreign matter such as dirt, dust, water, chemicals and organisms. Depending on the requirement of each joint there are various types of sealing solution available in the market.

Here we will discuss some very commonly used joint sealants in civil construction. There are mainly two types viz. Liquid applied and Pre-Formed. Varieties of polymers are used to manufacture liquid applied joint sealants. These include polysulfide, polyurethane, modified polyurethanes, silyl terminated polyether's, SPUR's, polymer modified bitumen, flexible epoxy, silicones and butyl rubber based materials are now being used.

JOINTS IN CONCRETE

There are different types of joints in concrete. As there is always a shrinkage involved while using cement concrete, this factor must be considered while concrete placement. Concrete can not poured in thick sections or longer spans, for two reasons. First reason is the heat generated in the concrete due to hydration of cement, which causes differential thermal gradient between the core and the surface. As the mass increases this gradient also increases. As per standard practices this gradient shall be as close as or less than 20°C. This limits the placement volume. Other reason is that, most of the times continuous pours are not possible or placement may get interrupted due to unavoidable delays. Apart from this longer and wider sections may crack due to drying, chemical, autogenous shrinkage, creep or thermal expansion and contractions. Expansion Joints, Control or Contraction Joints, Isolation Joints and Detailing joints are some of the type of joints in buildings.

Expansion joints are provided to allow movement in a structure caused by thermal or other factors such as wind loading.

Control joints are provided for expected cracking due to factors such as settlement, drying shrinkage or separation in building materials after construction. Internal control joints are typically nonmoving while in the exterior they also accommodate movement. External control joints require more design work.

Isolation joints are placed at junctures where changes in material require isolation for any differential movement between two different materials. Typical example is window frame perimeter abutting façade materials.

Detailing joints are designed as a part of waterproofing system. They are vital to impart water tightness at structure details such as pipe penetrations and changes in planes prior to application of primary water proofing compounds.

There is some thumb or basic rules for design of joints. These are as described below,

- Joint size no smaller than 6 mm.
- Generally limit the joint size in buildings to 25 mm.
- Joint opening shall be kept at a minimum of four times anticipated movement.

Sealant design shall take following rules in consideration while deciding width and depth.

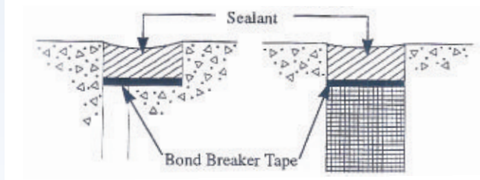
- Minimum material thickness shall be 6 mm.
- Up to 12 mm wide joints shall have Depth (D) = Width (W)
  Wider joints and traffic joints shall have D = W/2.
- Three way adhesions is not allowed so use of backer Rod or Bond breaker tape is a must.
- While using PE closed foam backer rod, it shall be 25% more in diameter than the joint size.
- Porous surfaces generally require primer to avoid passage of air / impurities to sealant in wet stage and for proper adhesion.

In liquid applied sealants there are mainly two types, viz. single component and two components. Single components PU based sealants such as KEM JOINT PU 100 work on a principle of curing by reaction with atmospheric moisture. Polysulfide based sealants such as KEM Joint GG and KEM Joint PG, have two component system. These cure because of chemical reaction between the hardener and base components.

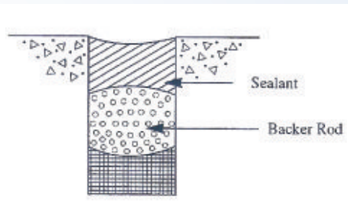
We will continue this article in the next Techconnect issue, where we will have a look at different specifications and some important factors such MAF.

Following illustrations provide an insight into application and mixing methods.

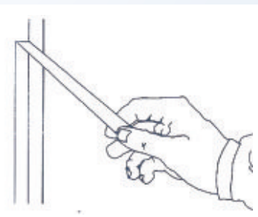
Use of Bond breaker tapes to avoid three way adhesion of Sealant.



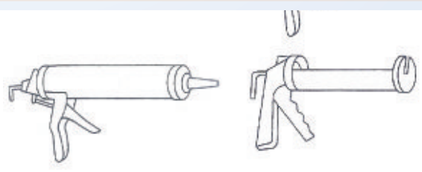
A section of joint showing sealant placed over a PE closed cell foam backer Rod.



Taping of Joint with masking tape to ensure Neatness.



Sealant Gun for application of Gun Grade sealant.



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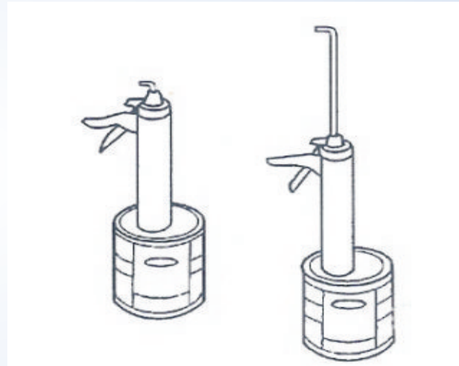
Proper mixing of 2 part sealants.

Filling of 2 part sealant in application Gun using follower plate.



New Products — KEM Joint PU 100 • KEM Gell EP

KEM Joint PU 100

Description:

KEM JOINT PU 100 is a single component polyurethane based elastomeric sealant which cures under the effect of atmospheric humidity to form a flexible and resistant joint with very good adhesion on the materials.

Application Areas:

It can be used for heavy and light precast panel expansion joints, wood, aluminum and PVC joinery seams, and expansion joints in traditional construction. It is highly recommended for bonding baked clay and concrete roof tiles. This sealant has a good adhesion without primer on other current materials most lacquered metals, polyester, glass, stone, ceramic tiles.

Dosage / Coverage:

CONSUMPTION (for a cartridge of 310 ml)

Tube(mm)	Length of cord (m)
2	98
3	43
4	24
5	15
6	11
7	8
8	6
9	4
10	3

KEM Gell EP

Description:

(ASTM C-881 Type I, VI, VII grade III, class B4 C.)

KEM GELL EP is a thixotropic two component epoxy based adhesive bond to variety of surfaces. It is supplied in gel like consistency which is easy to mix and apply. Base and hardner components and coloured different for ease of mixing.

Application Areas:

It is designed for use as a surface sealant for crack injection systems. It is also used as bonding agent for common construction materials including cement boards, glass, wood and some plastics. It is also recommended for filling blowholes and minor surface irregularities prior to application of gap epoxy resin based coating systems.

Dosage / Coverage:

2.850 litres / 3 kg pack.