



## The Expert >>

### 7th Article - Joint Sealants >>

As with the human body, taking care of joints is all important for longevity. The joints in a floor or more correctly the arrises of the concrete alongside require routine and systematic maintenance. This is of great importance in the first two years of the floor when the drying shrinkage is taking place.

However, providing effective joint sealants during this time is a problem as the material needs, ideally, to be soft enough to expand as the joint opens without breaking away from the sides while at the same time being hard enough to carry loads across the joint and to prevent damage to the arrises. This is a physical impossibility. So what do we do?

There are some engineers who have in the past advocated leaving the joints with no fillers - at least for the first few months. There is some logic in this as if the sealant cannot perform its primary function - to protect the arrises, then why bother? However, sealants also keep the rubbish out of joints. Rubbish includes nails and other hard objects that can themselves add to the potential for causing damage. Also rubbish filled joints give the wrong impression to visitors and staff

Joint sealants are described in terms of their ability to expand - The Movement Accommodation Factor (MAF) and their hardness

- known as The Shore A Hardness. Manufacturers' data should be examined carefully as claims for high MAF AND high Shore A Hardness might be made.

As a rule of thumb, a sealant that has a reasonable chance of preventing joint arris damage will have a MAF of about 10%. This means that a sawn joint starting out at 4-5 mm wide can only open by 0.5 mm before the sealant will fail by debonding from one side. We know that many joints will open by 2 -3 mm, some will open much wider and some will not open at all. So - no easy answer I am afraid.

The only solution is to monitor your floor carefully. That should mean every month in the first two years to see what is happening with the sealants. If they are breaking away AND there are early signs of arris damage, then refill the joint and accept that it might need doing a few more times before the shrinkage settles down. If there is no arris damage then you may decide to leave it for the time being. At two years, a thorough inspection should take place and all sealants should be replaced.

Joints that have not opened can have a very hard sealant fitted. The joint should then be good for many years. Joints that have opened will still require a MAF of about 10 % to take account of longer term movements in the floor as it expands



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and contracts in response to temperature changes.

Thereafter, inspection of joints should be part of a routine six monthly inspection of the floor. Joints usually get to require major maintenance because minor problems have not been dealt with early enough. It is a question of "a stitch in time ....".

**Next edition - Joint repairs.**

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