

Basilisk info no. 5:

Basilisk Repair Mortar MR3

Cracks in concrete, specifically below ground water level, can be detrimental to water tightness of structures and can therefore result in leakage problems. For technical repair of such cracks Basilisk Repair Mortar (MR3) has been developed. MR3 is a repair mortar modified with Basilisk Healing Agent. It contains natural enzymes and is specially developed for durable repair of larger cracks and porous parts of concrete structures.

Concrete repair problems

Concrete repair is a difficult and specialized discipline, especially when dealing with waterproofing of leakage issues. Ordinary repair materials often fail within several years after application, usually due to debonding of the repair material as a result of shrinkage deformations.

Basilisk MR3 addresses this issue due its specific composition and characteristics.

Advantages of Basilisk Repair Mortar MR3

- Strong bonding
- Low shrinkage
- Ductile behaviour
- Self-healing properties

Strong bonding

An important factor for sufficient bonding over time is the initial bonding strength of the repair material. Basilisk MR3 has a strong initial bonding. Tests show a bonding strength of 2.3 MPa (in accordance with NEN-EN 1504-3, carried out by an independent lab). Together with low shrinkage and its ductile properties this results in long-term bonding. It must be noted that initial bonding strength is greatly depended on the application of the mortar.

Low shrinkage

Basilisk MR3 is a cement-based mortar which are known to have relatively high amount of shrinkage due to cement hydration. Therefore we have incorporated a type of internal curing, which provides additional hydration from inside the mortar matrix. This, together with sufficient exterior curing, will result in low shrinkage properties.

Although shrinkage is kept to a minimum, there will always be deformations within the mortar repair, whether it is in early or later stage. Therefore we have incorporated fibers to the mortar design to secure a fine pattern of microcracks rather than a single larger crack.

This will significantly contribute to the durability of the repair, especially when dealing with waterproofing issues.

Ductile behavior

As mentioned earlier, concrete repairs often fail prematurely due to debonding as a result of deformations, or better said the lack of the repair material to cope with these deformations. Partially this is due to specific requirements which are set by international norms and standards.

MR3 is able deal with shrinkage deformations due its ductile behavior. The ductile behavior is established by a low elastic modulus together with the incorporation of PVA-fibers. This combination results in multiple small cracks when subjected to bending, instead of one single break in the middle.

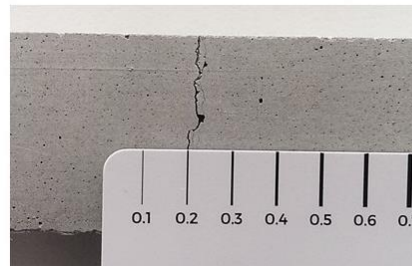
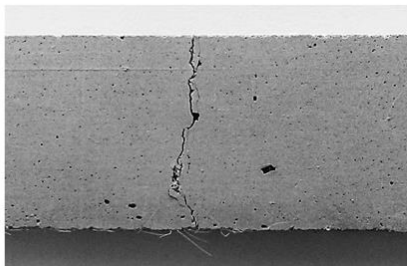


Self-healing properties

All previous mentioned characteristics of Basilisk MR3 Mortar result in, when subjected to heavy deformation, in a widely dispersed network of micro-cracks. Which is no issue in dry conditions, but in moist conditions even hairline cracks may result in leakage problems.

This is where Basilisk MR3 Mortar really sets itself apart from the competition because MR3 contains self-healing technology. A specially developed agent is added to mortar which enables a self-healing technology based on micro-organism activity. When subjected to moisture the micro-organisms are activated which results in calcium carbonate (limestone) formation inside the hairline cracks. Which will seal the cracks and stop leakage.

Before



After
6 weeks of
Healing



Healing Conditions:
- Submerged in fresh water.
- Temperature: 20 °C.
- Duration: 42 days.



Due to its strong bonding, low shrinkage and ductile properties Basilisk MR3 Mortar is a very suitable product for durable repair of concrete structures. Its self-healing properties makes it unique mortar and especially suitable for repair of leakage issues.