

Moisture movement and durability of cement-based composite materials

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Service life of most reinforced concrete structures exposed to aggressive environment is not sufficient. In many countries this fact is both an economical and an ecological serious problem. Frequently transport of aqueous salt solutions is at the origin of early deterioration. Neutron imaging has proved to be a unique test method to determine moisture movement in the micro-porous structure of concrete. It will be shown that the ingress of salt solutions such as seawater can be significantly reduced by water repellent surface treatment. The influence of frost action on moisture migration will be outlined. Special emphasis will be placed on the role of cracks in moisture transport. Results obtained so far serve as solid basis for further investigations.

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