

Aging mechanisms and durability performance of inorganic bonded fiber composites

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Abstract

The combination of inorganic matrices and fiber reinforcement is a tool box which can offer numerous degrees of freedom for development of composites having variety of properties which can be tailored for different applications in the construction industry. However, a bottleneck in these developments is the need to assure adequate long term performance in components where the service life required is several decades. Usually, ad-hoc approach is taken to analyze and predict the performance of specific systems which are being considered, both with respect to assessment of the durability performance and modifications which may enhance service life. The object of the current paper is to provide an overview of the aging processes, their assessment and the modes to modify and control them. The outcome of the overview can serve as a guide to making the choices in the development and the assessment of inorganic bonded fiber cement composites, to take into account the matrix, the fibers and the mode of production.