

Effect of the microstructure of mortars with low hydraulicity slag on their behavior in aggressive environments

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Abstract.

Slag is one of the most used cement additives. Due to its latent hydraulic nature, attached to its hydraulicity, it can contribute to a microstructural modification and an improvement of the durability of the concrete in the face of aggressive environments. In this study, a low active slag is used in the manufacture of mortars as a substitute for cement, at a maximum rate of 50%. Firstly, a study of the microstructure with mercury porosimetry was used for determination of microstructural parameters (porosity, diameters and volume distribution). The behavior of mortars in aggressive environments (sodium and magnesium sulphate and seawater) was studied later. Despite the low reactivity of studied slag, its presence especially at 50% rate, in the long term, has led to a refinement of the microstructure. This effect, among others, led to better resistivity of the mortars in the sulphate environments.