New natural hydraulic lime mortars – Physical and microstructural properties in different curing conditions

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Abstract

The new version of EN 459-1 standard for building limes redefined the classes of hydraulic limes and made the producers reformulate or reclassify their natural hydraulic limes.

This work evaluates the mechanical, physical and microstructural behavior of mortars formulated with a recently produced natural hydraulic lime NHL3.5 that conforms to EN 459-1, submitted to natural marine environment, humid and standardized conditions, and also the benefits and drawbacks of adding metakaolin in partial replacement of lime.

Mortars with NHL3.5 present positive results at young ages. The metakaolin addition increases strength while decreasing the capillary water coefficient. The behavior in an aggressive marine environment seems promising.

Keywords:

EN 459-1:2010; Natural hydraulic lime; Mortar; Curing condition; Metakaolin; Laboratory characterization