



Dry slaked mortars and hot lime mortars for the restoration of historical monuments and stone

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Dry slaked lime mortars are the most common historical building mortars and can be found all over the world.

Dry slaked mortars, characterized by their typical lime inclusions are recovered and used in building restoration in Germany since the 1990.

Beside aesthetical reasons, dry slaked mortars are to be distinguished because of their low affinity to shrinking, high durability and the effect of “self-healing” by precipitation of free lime within fractures and fine cracks.

In connection with a research project in 2009, dry slaked mortar, configured after indication and traditional techniques and factory-dried mortar were investigated and used. All mortar variations were applied on a test field for long-term observations under similar environmental conditions. The dry slaked mortar was performed with lime, burned in traditional baking-technique and mixed with local sand. As a case study, the results are shown on the test field in the castle ruin “Gleichen” in Thuringia/Germany.

After two years of exposition first changes can be observed like sanding and material loss in all mortar variations quantified by mapping.

Hot lime mortars are particular because of their early strength, low expansion and high durability. Because of their early strength even very fine aggregates can be used in the style of the natural stone without to consider the grain-size distribution curve. Therefore hot lime mortars are predestinated for mortars in stone restoration.

The early strength can be influenced by additive of hydraulic binding material. This promotes the workability and later durability of the material. The expansion shows no influence by moderate additive of the hydraulic binder and a high resistance compared to crack formation.

Restoration mortars, based on the hot lime technique for different Mexican volcanic building stones will be presented with special attention to their petrophysical properties.