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Comparison of mechanical properties repair mortars and Hungarian porous limestone

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The physical properties of repair mortars were compared to the properties of Hungarian porous limestone under laboratory conditions. Uniaxial compressive strength (according to EN 1926:2007) of casted cubic mortar tests specimens were recorded in time. Specimens were kept both in humid and in dry conditions and their strength were tested 3-90 days after casting. It was possible to compare the curing conditions based on the test results. Samples that were stored at dry conditions had lower strength than that of the ones kept under humid conditions. The strength of porous limestone is lower than that of the pure repair mortars. In order to decrease the strength of repair mortars porous limestone aggregate was added (1-2 mm in size) to the mortars. 50% of limestone aggregate decreased the strength of most tested mortars. These tests have demonstrated that most of the commercially available repair mortars have much higher strength than that of the porous limestone, which is the main construction material of several monuments in Hungary. By adding porous limestone aggregate to the mortar a better compatibility is obtained, however even when 50% of limestone was added the strength of the mortars were higher than that of the pure porous limestone. Further studies are needed to find a better compatibility in strength between these mortars and the porous Hungarian limestone.