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Mineralogy and petrography of medieval hydraulic mortars: a key factor to understand the medieval technology of inorganic binders manufacture

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Hydraulic binders have been widely employed since antiquity for important engineering structures. The knowledge on their manufacturing has not been lost during Dark Ages and can be traced throughout Europe during medieval and early modern times. Mortars from several Czech monuments dated from Romanesque till Baroque periods have been analysed for their phase and chemical composition in order to understand the materials from which binders have been prepared. The microscopic investigation proved that not only impure limestones but also marlstones have been employed for blends that were burnt to produce hydraulic binders of different quality. The chemical analyses (FTIR spectrometry) did not proved wide use of organic binders instead of the fact that those are often referred in literature.