



Mineralogical composition and phase-to-phase relationships in natural hydraulic lime and/or natural cement – raw materials and burnt products revealed by scanning electron microscopy

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In contrast to modern process of production of cement clinker, traditional burning of natural hydraulic lime below sintering temperature relied on the formation of new phases from ion migration between neighbouring mineral grains composing raw material. The importance of the mineralogical composition and spatial distribution of rock-forming minerals in impure limestones used as a raw material for natural hydraulic lime presents not well explored issue in the scientific literature. To fill this gap, the recent study focuses in detailed analysis of experimentally burnt impure limestones (mostly from Barrandian area, Bohemian Massif). The phase changes were documented by optical microscopy, X-ray diffraction, and scanning electron microscopy with an energy dispersive spectrometer (SEM-EDS) coupled with x-ray elemental mapping. The latest allowed for visualization of distribution of elements within raw materials and burnt products. SEM/EDS study brought valuable data on the presence of transitional and/or minor phases, which were poorly detectable by other methods.