Motivation

Alkali corrosion of the refractory lining and the steel construction in industrial facilities due to the alkali load of the fuels is a problem long since known. This problem is in the cement industry tremendously important because of the energy cycles and the cycles of matter in the kilns and the increasing use of secondary fuels. These materials used as combustibles are for example used tyres, waste oil, biogas and domestic waste. In comparison to conventional fuels they contain higher amounts of alkali compounds and, therefore, enhanced alkali corrosion is observable. In consequence, the refractory lining is affected leading finally to its destruction. This results in increasing energy losses during service life and a higher energy demand to produce the replacement material because of the shorter life cycles. Hence, the development of alkali corrosion resistant materials is crucial for the production of cement clinker in an energy-efficient way and with minimized CO₂ emission.

Main aims

This research project aims for the development of new, intelligent customized, alkali corrosion resistant refractory functional materials as well as insulating materials and protective layers for metallic components for reduction of energy loss and emissions in high temperature processes and for process innovation using the example of the cement industry. The new developed materials should be tested first by means of suitable testing methods on the laboratory scale and finally under practice conditions in industrial facilities.

Lead management

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Project partners

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Funding

The PEHA project is funded by the German Federal Ministry of Education and Research as BMBF project No. 03X3527.

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