

## Abstract

This document describes the development of a high performance fire protection coating. This coating should substitute a fire safety cladding without the use of any additional gypsum boards. To achieve this goal it was necessary to develop testing methods which were able to classify the properties of the single chemical development steps fast and efficiently. Additionally a physical model was described. The developed physical model was used to analyse the results gained through the tests. This formed the basis for the further chemical research work. Promising coating formulations were examined in specific furnace tests under consideration of the application. Building upon these studies the systematic relevance of real constructions was investigated. Afterwards the climatic durability was discussed and enhanced. Furthermore endergonic reactions and ideas to stabilise the protection layer were evaluated to enhance the overall performance of the system.