

# DREAM Technology Case Study: Innovative Refractory Materials

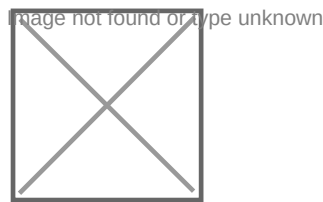
Project:

Design for Resource and Energy efficiency in cerAMic kilns

The DREAM project (Design for Resource and Energy efficiency in cerAMic kilns) aims to design, develop and demonstrate a radically improved architecture for ceramic industrial kilns, characterised by optimised energy consumption, reduced emissions, and lower operating costs compared to currently available technological solutions.

DREAM website

Horizon 2020 - Research&Innovation Programme under Grant Agreement n° 723641.



Sector:

**Cement**

found or type unknown

**Ceramics**

found or type unknown

**Engineering**

found or type unknown

**Minerals**

found or type unknown

**Non-ferrous  
metals**

found or type unknown

# Steel

Summary:

Reflective coating has been developed for reducing the heat loss through the walls of ceramic roller kilns for tile manufacturing. The coating composition contains aluminum oxide that gives IR-reflective properties to the coating. The main aim of the coating is to save energy by lowering the radiative heat transfer from the kiln to the surface of the refractory lined walls and, as consequence, to reduce heat loss through the kiln walls.

The coating has been developed for the application on refractory materials. In particular, it has been studied both for new refractories and for retrofitting applications: refractory linings have the tendency to become crumbly or fissured during their working life.

## **Features**

- Reduce the heat transfer from the kiln atmosphere into the refractory materials.
- Balance the thermal profile inside the furnace, thus improving the sinter of kiln charges
- Reduce thermal energy dispersed through the kiln vault and walls
- Stabilize the surfaces of retrofitted refractory linings that became crumbly/fissured after considerable time of use.

## **Applications outside the project**

- Energy efficiency in high temperature environment;
- Furnaces/kilns retrofitting

Theme:

[Industrial furnace design - SPIRE04-2016](#)

Keywords:

Kiln, furnace, energy efficiency, retrofitting, refractory

Type:

[\*\*Case study\*\*](#)

Rights:

## **Restricted Access**

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