

# NOVEL INTEGRATED REFURBISHMENT SOLUTION: A PATH TO CREATING ECO-EFFICIENT, COMPETITIVE FURNACES

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**Project duration:** 07/2016 – 12/2019

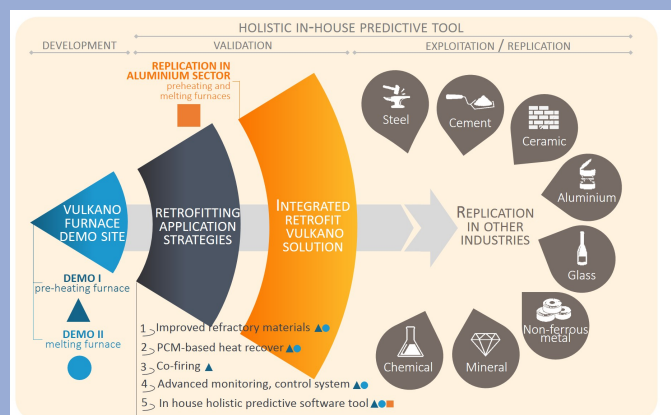
## PROJECT MOTIVATION

European intensive industries are continuously facing new challenges to enhance the efficiency, reliability and flexibility of their processes. Energy intensive industrial furnaces have been the focus of multiple research projects addressing radical improvements for system-level competitiveness as well as energy, environmental and cost performance. Improved designs based on new materials, alternative feedstocks, equipment and the integration of permanent monitoring and control systems into new and existing furnaces could be key in meeting those demands.

## PROJECT OBJECTIVE

The objective of VULKANO is to design, implement and validate an **advanced retrofitting integrated solution** to increase energy and environmental efficiency in existing natural gas-fed preheating and melting industrial furnaces. Combined new solutions will be implemented **based on high-temperature phase change materials, new refractories, optimized co-firing, advanced monitoring and control systems and a holistic in-house predictive tool**. Implementation will occur in two demonstration facilities: one in the ceramics sector (Spain) and one in the steel sector (Slovenia). The solutions' replicability will also be tested in the aluminium sector (Turkey). The aim is to achieve a 20% increase in industrial furnace efficiency in the steel, ceramics and aluminium sectors, and a 27% reduction in the use of fossil fuels, forecasted in VULKANO.

**Project funding:** 7M euros: EC – Horizon 2020 - Sustainable Process Industry through Resource and Energy Efficiency Public-Private Partnership (SPIRE PPP).



## PROJECT PARTNERS

The consortium has 12 partners from Slovenia, France, Italy, UK, Poland, Germany, Turkey and Spain and is coordinated by the Centre of Research for Energy Resources and Consumption (CIRCE).

## FRAUNHOFER IMW ROLE

Fraunhofer IMW's project team aims to establish the basis for market uptake of VULKANO's innovative solutions through strategic and business-oriented commercialization activities. As a leader of the WP 10 „Exploitation & Business Plan“, the institute will ensure the exploitation and replication of the project's results. VULKANO is the Fraunhofer team's second project under the Horizon 2020 framework program SPIRE PPP. The first one is DISIRE (Integrated Process Control based on Distributed In-Situ Sensors into Raw Material and Energy Feedstock).

