Name

VULKANO: Novel integrated refurbishment solution as a key path towards creating eco-efficient and competitive furnaces

Tagline

Leading the change towards eco-efficient furnaces

One sentence

VULKANO aims to design and validate an advanced retrofitting integrated solution to increase the energy and environmental efficiency in existing preheating and melting industrial furnaces, currently fed with natural gas

Bullet points

VULKANO will increase by 20% the overall energy efficiency of current heating and melting furnaces, as well as reduce up to 40% their fossil fuel consumption, by means of a novel integrated solution which comprises:

- High-temperature phase change materials (PCMs)
- New refractories
- Optimized co-firing
- Advanced monitoring and control systems
- And a holistic in-house predictive tool.

Half page

VULKANO -Novel integrated refurbishment solution as a key path towards creating eco-efficient and competitive furnaces– is an international collaborative project funded by the European Commission under the Horizon2020 program. The total cost of VULKANO amounts to 6.9m€ and involves 12 partners from Spain, France, Italy, Germany, Poland and United Kingdom.

The project aims to contribute to update the mainly old-aged European furnaces of the intensive industries and to create a path to follow in order to ensure a successful design in case of new furnaces.

For this reason VULKANO will design, implement and validate an advanced retrofitting integrated solution to increase the energy and environmental efficiency in existing preheating and melting industrial furnaces, currently fed with natural gas. This will be achieved through implementing combined new solutions based on high-temperature phase change materials (PCMs), new refractories, optimized co-firing, advanced monitoring and control systems and a holistic in-house predictive tool.

The integrated solution will be tested in two real pilots for the steel and ceramic sector, validating their replicability in the aluminium sector. Besides, the project partners will analyse this replication in several other sectors. By means of its implementation important achievements are expected such as an increase of the furnaces energy efficiency up to 20% and a reduction of the fuel consumption up to 40%, depending on the sector.

On top of that, the holistic tool will also be able to optimize the integration of the solution with upstream/downstream perspective, following a life cycle and cost thinking. This will support plant operators and decision makers to select the most suitable retrofitting strategy for their plants, fostering overall efficiency, increase in competitiveness and circular economy and reducing the environmental impact of the product value chain

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