

DREAM Technology Case Study: CHP unit

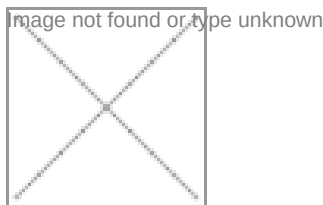
Project:

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

Chemicals

 found or type unknown

Non-ferrous metals

 found or type unknown

Steel

 found or type unknown

Water

Summary:

The use of a Combined Heat and Power (CHP) unit has proved to be an effective solution for increasing the overall energy efficiency. The CHP unit can generate part of the electricity needed to supply the electric kiln appliances (fans, motors etc.) whilst the heat of its exhausts is recycled to the sprydrier or any of the thermal machines installed along the production line, in function of the cost/benefit ratio achievable. The integration of a CHP unit is an interesting option for those countries where the gap between electric and fossil fuel is high and when all the electrical energy is fully recovered in the plant.

The possibility, under certain conditions, of using also biofuels to supply the CHP unit increases its flexibility and can reduce operating costs. The crucial issue for now seems to be the size respect the energy consumption of the production line while there is a still limited availability of CHP models on the market.

Features:

- Increase the overall energy efficiency of the kiln;
- Optimize the working conditions;
- Avoid kiln stops during electrical blackout

Applications outside the project

- Drying processes;
- Reuse of exhaust gases.

Theme:

Industrial furnace design - SPIRE04-2016

Keywords:

Kiln, furnace, energy efficiency, retrofitting, CHP unit, cogeneration

Type:

Case study

Rights:

Restricted Access

Contact Name:

Gabriele Frignani

Email:

gabriele.frignani@sacmi.it