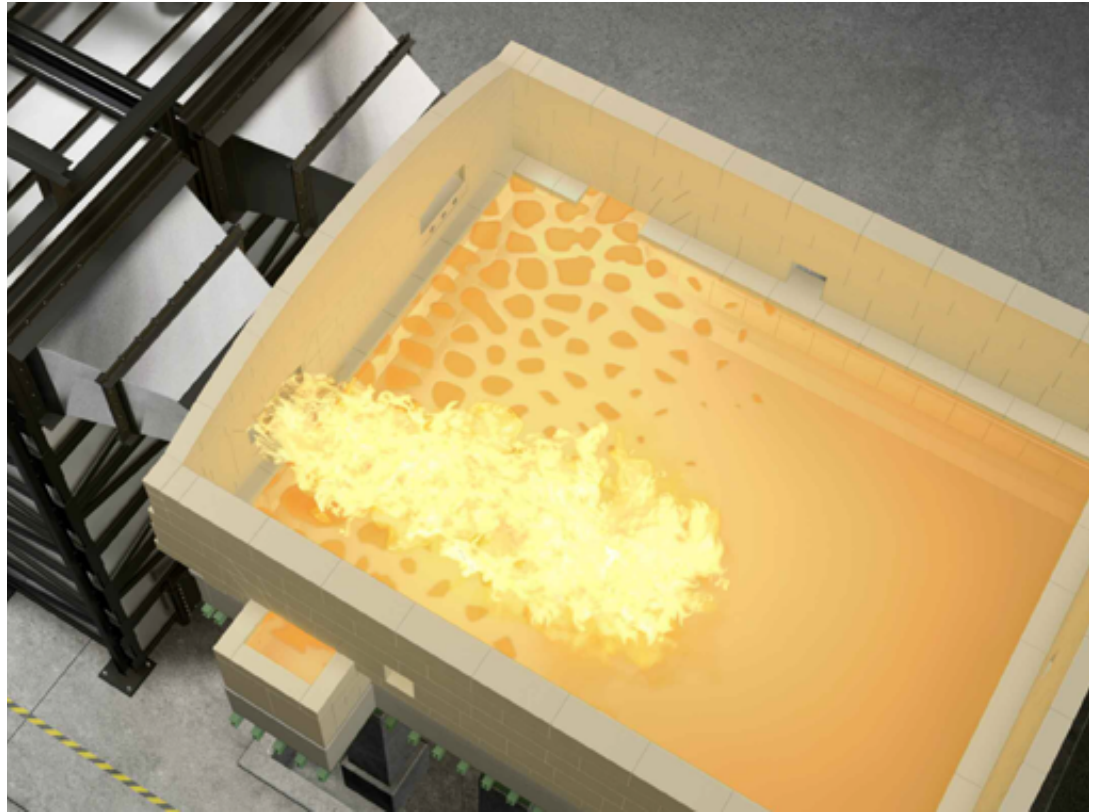




Linde's OPTIMELT™ ThermoChemical Regenerator



What Linde's OPTIMELT System Does For You

Linde's OPTIMELT™ ThermoChemical Regenerator (TCR) recovers waste energy stored in regenerator checkers by preheating fuel and endothermically reacting the fuel with the carbon dioxide and steam in recycled flue gas.

The result is conversion of fuel to hot syngas – delivering a net reduction in fuel required to melt glass by up to 20% to 30% compared to oxy-fuel and air-fuel glass furnace, respectively.

What's more, the OPTIMELT TCR system can deliver these results by using only 33% of the checker volume typically required for air preheating regenerators. The OPTIMELT TCR system includes regenerators, flue gas recirculation equipment, ducting to the regenerators, blowers, oxygen injectors, and a proprietary control system.



"By using the new Linde OPTIMELT TCR system on our oxy-fuel furnace, we have been able to realize significant improvements in furnace energy efficiency, along with an almost twenty percent reduction in fuel consumption."

Alonso Gonzales
Vice President, Grupo Pavisá



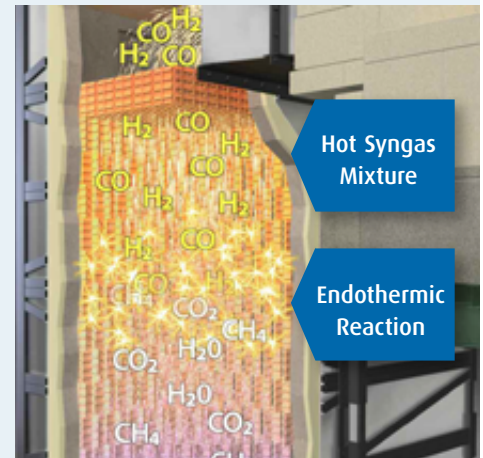
Linde's OPTIMELT™ TCR, located at Leerdam Crisal Glass in the Netherlands, is in its 7th year of operation.

Linde's OPTIMELT TCR Can Deliver

- Up to 30% Fuel Savings
- Improved Furnace Energy Efficiency
- High Glass Quality
- Safe and Reliable Operation
- Robust Design

Here's how Linde's OPTIMELT TCR system works:

- A small amount of flue gas is recycled, mixed with natural gas and introduced at the inlet of the checker stack
- This mixture absorbs energy stored in the refractory bricks, and high temperature results in an endothermic chemical reaction
- The gases are converted into a hot syngas mixture containing large quantities of hydrogen and carbon monoxide that fuel the furnace
- This new hot syngas mixture, when combusted with oxygen, allows for more efficient combustion in the furnace



The Linde Difference

The OPTIMELT TCR system is another tangible example of Linde's commitment to making our planet more productive by providing products and services that enable customers to increase productivity and reduce costs in safe and sustainable ways.

To find out more about the Linde OPTIMELT TCR system contact your Linde representative, visit www.lindeus.com or call 1.844.44LINDE.

Linde
10 Riverview Drive
Danbury, CT 06810
Phone 1.844.44LINDE (1.844.445.4633), Fax 1.800.772.9985; 716.879.2040
www.linde.com

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