



INNOVATIVE SOLUTION
FOR ENERGY EFFICIENCY



EMISSPROTM SERVICE PACKAGE:

EmissproTM coating service provides superior coating quality by high expertise service team with excellent quality control to maximize furnace thermal efficiency and customer benefit;

- Furnace performance prediction and evaluation
- Refractory installation and maintenance
- Furnace refractory coating
- Supervisory service



PROPERTIES	TEST METHODS	VALUE
Emissivity	Pyrometry	0.80-0.95
Surface strength	ASTM C1624-05 (2010)	>20N
Adhesion pressure	ASTM D3359-09	>1,000 psi
Thermal shock resistivity	Alternate heat/cold	12 Cycles

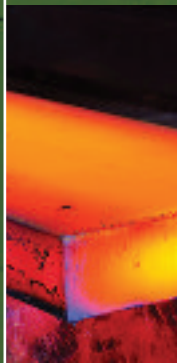
Petrochemicals
and Refinery



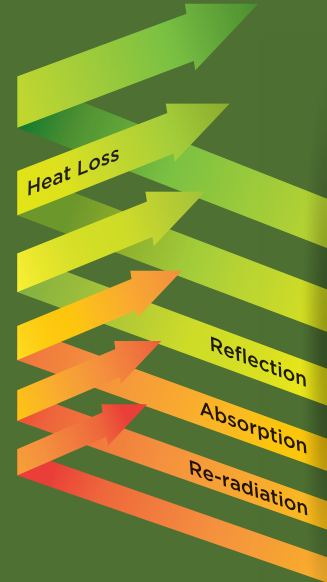
Kilns



Steel
and Metal
Production



SCG
CHEMICALS



WHY IS EMISSPRO™ IMPORTANT FOR YOUR INDUSTRY ?

Furnaces are versatile equipment for heat liberating and transferring to feedstock or raw materials for the purpose of physical or chemical change at high temperature. Regarding to the high temperature of the combustion gases and furnace walls, radiation is the predominant mode of heat transfer in furnaces.

About 70-90% of heat absorbed in firebox or radiant section of a furnace is transferred by radiation. Considering the scale and the importance of the industrial process, even a small improvement of radiation heat transfer can be transferred in to an important increase in the production yields or an important decrease in the fuel gas consumption.

Emisspro™ is a high emissivity coating developed to maximize furnaces or kilns thermal efficiency to thereby reduce fuel consumption in various industrial furnaces. Emisspro™ contains materials capable of absorbing and re-radiating thermal energy and is designed to provide improvement of lining service strength, higher abrasion resistance, good thermal shock resistance, thermal expansion characteristics similar to their intended substrates, and adequate bond strength with the substrate.

The effect of Emisspro™ on furnace wall on the furnace thermal efficiency could be explained on the basis of the radiation. Firstly, the application of Emisspro™ on a furnace wall implies that the amount of radiation energy that is reflected by the wall decreases. Secondly, the amount of radiation energy that is absorbed by the wall increases. As the furnace walls are insulated and the heat loss to the environment through the wall is small, more of this energy is re-radiated back in the furnace. Unlike the reflected energy that preserves its spectral character, the re-radiated energy is redistributed over the entire wavelength spectrum. Furthermore, only a small part of the absorbed radiation is re-radiated within the range of absorption bands of the gas. Thus, in the event of a coated furnace, an additional amount of radiation passes directly to the reactor tubes or targeted loads without being absorbed by the gas medium.

The application of Emisspro™ on the internal surface of furnace walls is proved to result in an increase in thermal efficiency. In general, Emisspro™ maximizes and stabilizes the emissivity over varying process temperatures, therefore promoting rapid and efficient heat transfer, uniform heating and extended refractory service life.

Substantial improvement
of furnace thermal
efficiency



Reduce heating time in furnaces

BENEFITS OF USING EMISSPRO™

Turn industrial furnaces to
green combustion;
less fuel gas consumption
and less emission of green
house gas (GHG)

Prolong service life of furnace
lining materials

Cost effectiveness

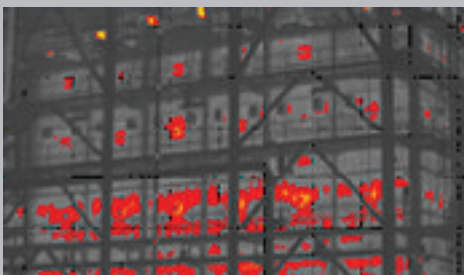
PAST SUCCESS

Type: Olefins Plant
Capacity: 1,200,000 Ton/Year
Coated: 12 Furnaces
Date applied: July 2009
Fuel saving: 7,500 Ton/Year
GHG reduction: 20,000 Ton/Year

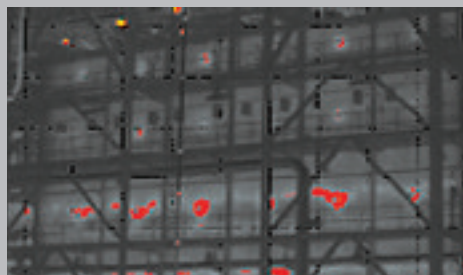
Type: Olefins Plant
Capacity: 1,700,000 Ton/Year
Coated: 8 Furnaces
Date applied: February 2012
Fuel saving: 9,000 Ton/Year
GHG reduction: 25,000 Ton/Year

Type: Hot rolling steel plant
Capacity: 400,000 Ton/Year
Coated: 1 Furnace
Date applied: July 2013
Fuel saving: 600 Ton/Year
GHG reduction: 1,650 Ton/Year

Type: Ceramic tile production
Capacity: 20,000,000 M²/Year
Coated: 8 Furnaces
Date applied: April 2012
Fuel saving: 525 Ton/Year
GHG reduction: 1,450 Ton/Year

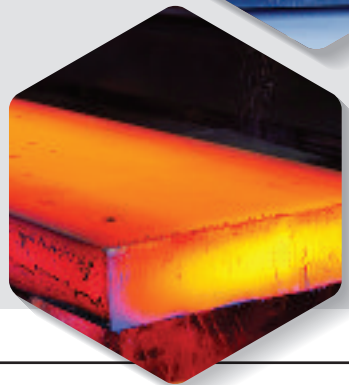


BEFORE



AFTER

INFRARED
THERMOGRAM
OF AN OLEFINS
FURNACE



EMISSPRO™ APPLICATIONS:

Emisspro™ high emissivity coating is used in high temperature industrial applications such as fired heaters, furnaces, kilns, refinery and petrochemical industries, etc.

The various substrates are applicable with high emissivity coating such as firebrick, insulating firebrick, high alumina brick, castable refractory, plastic refractory and ceramic fiber.

- **PETROCHEMICALS AND REFINERY**

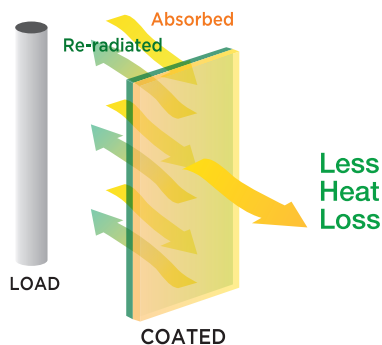
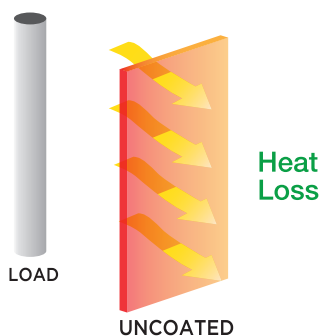
Olefins production process, Refinery feed pre-heating process, Monomer production process and Reforming process

- **KILNS**

Tile and brick production process, sanitary ware production process, Porcelain and ceramic production process

- **STEEL AND METAL PRODUCTION**

Reheating process, Annealing process



ABSORBED
& RE-RADIATED
ENERGY



SCG
CHEMICALS

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