Temperature Sensor System

Process and Components

- optimization
- transparency
- characteristics

Identify Potentials

Early and individual application, related to building components and issue.

Reduce Corrosion and Fouling

Recognize, evaluate and optimize the effects of operating procedures.

Avoid Corrosion and Fouling

Identify fields of action within the process and adjust operating modes.

Applications

Optimization of Firing

- recording of local heat flow
- implementation of the signal into a process-control system
- objective:
  - consistent heat extraction at all radiation heat transfer surfaces

Optimization of Online Cleaning

- installation in the area influenced by online cleaning
- objectives:
  - demand-oriented cleaning with respect to frequency and intensity
  - demand-oriented equipment with cleaning units

Optimization of the SNCR

(selective non-catalytic reduction)

- local installation at the position of injection enabling an accurate dosage (minimization of ammonia slip)
- installation in the radiation pass aiming at the homogenizing of heat flow, avoidance of plumes and resulting improvement of the SNCR technology

Monitoring of Refractory Systems

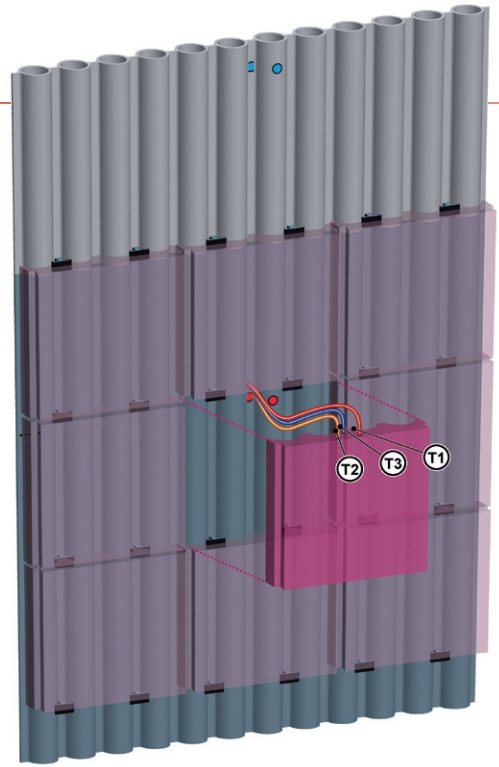
- temperature measurement in refractory linings
- objectives:
  - monitoring and optimization of drying process, start up and shut down procedures
  - homogenizing and minimization of thermal load

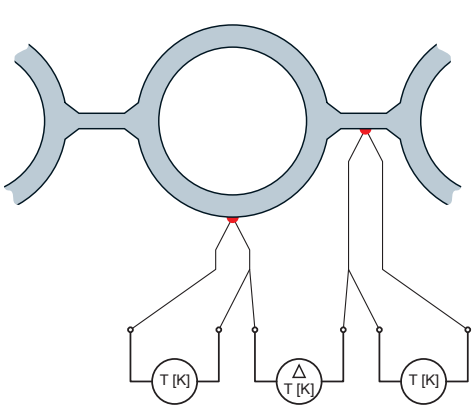
CheMin®
Understanding and Improving Thermochemical Processes

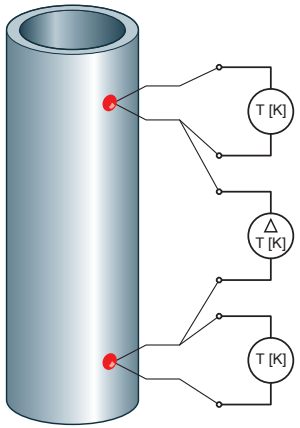
Temperature Sensor System

Function of the Sensor System

- installation of thermocouples at heat exchange surfaces that are outside or inside (temporarily) the boiler
- sensor system non-exposed to flue gas with a long lifetime
- recording of absolute temperatures
- recording of differential temperatures (= extracted heat quantity from flue gas in medium).





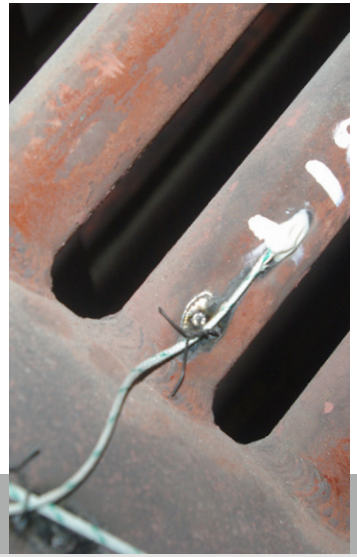


Each Sensor System is Customized

- demand-oriented number of thermocouples
- customized place of installation
- demand-oriented combination of differential and absolute temperature measurement

On-site Application

Installation during outage



Current Applications

location	fuel	issue
evaporator heating surfaces: combustion chamber and blank passes	biomass	online boiler evaluation/engineering
evaporator heating surfaces: combustion chamber	waste/RDF	fire position
evaporator heating surfaces: combustion chamber	waste/biomass	flue gas flow/imbalances
refractory lining 1st pass	cement	corrosion at holding devices
refractory lining 1st pass	waste	operating performance of refractories (start up support)
refractory lining 1st pass	waste/RDF	heat transfer
Refractory lining 1st pass	waste	calculation of drying curve (SiC mass)
evaporator heating surfaces	lignite	flexibilisation of operation
refractory lining 1st pass	waste/RDF	heat transfer: comparison protective layers
evaporator heating surfaces: ceiling 1st pass	waste	superheating incidents
evaporator heating surfaces: ceiling 1st pass	waste	evaporation safety
evaporator heating surfaces: blank passes	waste/biomass	online-cleaning review/optimizing
superheater	waste	analysis of components
superheater	waste	analysis of materials
economizer	waste	control of feedwater temperature
steam-gas-heat exchanger	waste	threshold temperature for corrosion

CheMin GmbH
Am Mittleren Moos 46 A
86167 Augsburg, Germany

Phone +49 821 748 39 0
Fax +49 821 748 39 39
www.CheMin.de