

High Temperature Chamber Furnace



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EST

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Scope of Application

- Development and testing of online corrosion sensors: Membrane Wall Sensor and Superheater Sensor
- Generation of a corrosive environment according to the fireside of an industrial boiler: temperature and atmosphere
- Investigation of high temperature corrosion mechanisms
- Examination of the corrosion behavior of different boiler steels and coatings
- Investigation of different corrosive deposits obtained from full-scale plants
- Test duration of several weeks

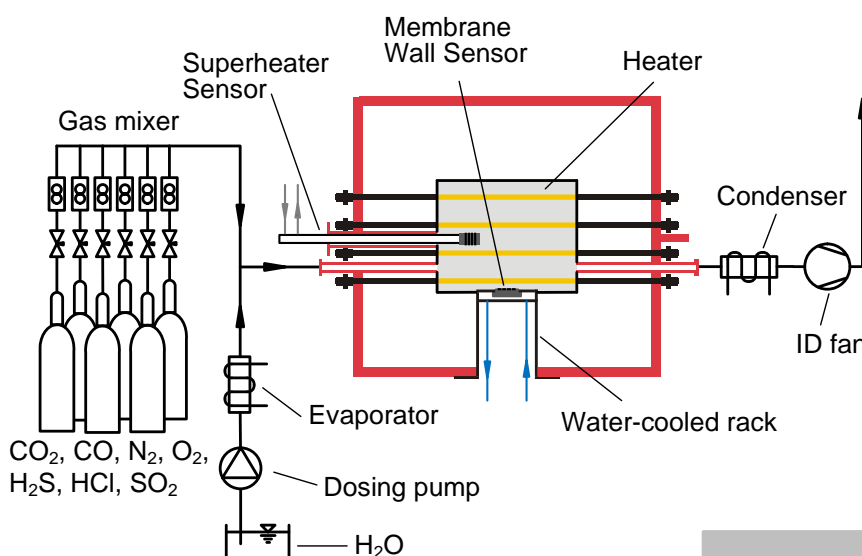
Technical Specifications

- Temperature: max. 1100 °C
- Sensor temperature: 350 – 550 °C
- Heating rate: 80 K/h
- Atmosphere: synthetic flue gas
- Electrical power: 12 kW
- 12 ceramic radiation pipes
- Chamber volume: 154 l
- Gas volume flow: 500 l/h

PADELTHERM®

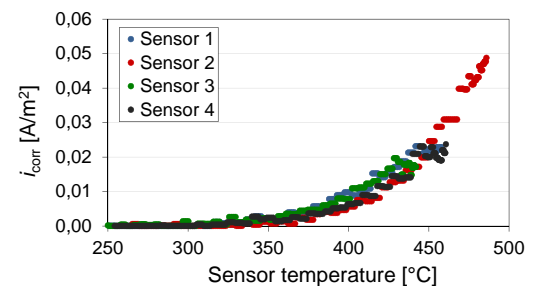
Öfen für Metall, Keramik,
Glas, Sonderverfahren

Schematic Illustration



Corrosive Deposits

- Corrosive deposit containing KCl (0.5 %_{wt} Cl)
- Electrode material: 13CrMo4-5
- Rising Sensor temperature during heating phase
- Corrosion signal i_{corr} increases exponentially with temperature
- Final oven temperature: 1060 °C

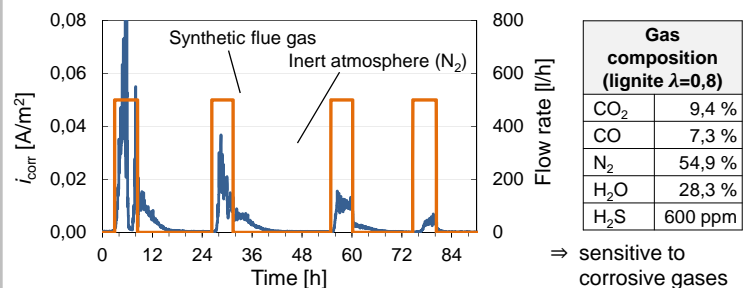


Water-cooled rack

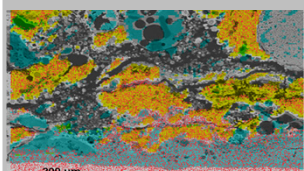


- 4 Membrane Wall Sensors enable parallel and efficient measurements
- Sensor electrodes are covered with deposits
- Water cooling sets the sensor temperature to 350 - 550 °C

Synthetic flue gas



Laboratory Analyses



- Mass loss detection
- EDX analysis of corrosion products
- RFA analysis of deposits and ashes

Project Partners & Contact



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