OTTO VON GUERICKE UNIVERSITÄT MAGDEBURG

CHAIR OF THERMODYNAMICS AND COMBUSTION

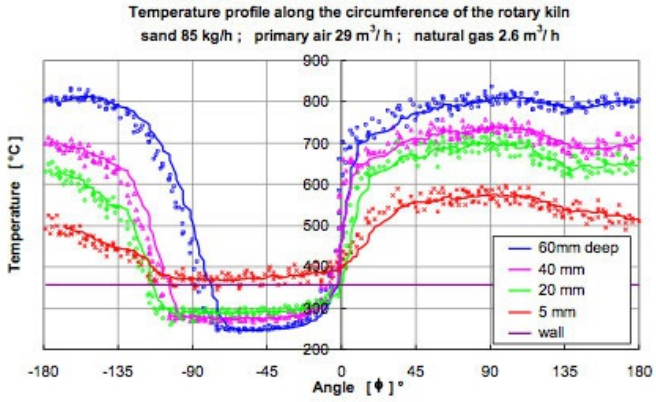
# Rotary Kilns

For modeling processes in rotary kilns, reduced mathematical models are developed for heat transfer, flame spread and for t movement of material . On the basis all processes are simulated.

It describes the influence of the length, the diameter, the rotational speed and the degree of filling of the rotary kiln as well as t properties of the material, among others. For the transverse transport mathematical models are derived, which described the s line, the speed profiles and the local mass flows. The theoretical results are in relatively good agreement with our own and oth readings. For further measurements, there is a joint research project with Prof. Dr. P. Walzel of the University of Dortmund. T flame spread is calculated with the CFD program system FLUENT.

Under investigation is the influence of the air preheating, the fuel type of material (coal, oil, gas), the twist and the burr construction. On the basis of known theories relationships between the variables and the type of fuel are derived. To describe t complicated mechanism of heat transport, models for transport over the wall and in the moving bed are worked out depending the material properties of the wall or the bulk material.

The experimental determination of heat transfer a test furnace will be used (internal diameter 400 mm). The furnace can continuously measured up to 1100 ° C in the radial and axial temperature field. In addition, the axial course of the g concentrations can be detected. The furnace can be operated in parallel and counter flow. The speed and inclination can adjusted.




Temperaturprofil in Drehrohröfen

more informations, see › pilot plant rotary kilns (https://www.ltv.ovgu.de/ltv/en/Technology/Pilot+Plant+Rotary+Kilns.html) and in › information brochure (https://www.ltv.ovgu.de/ltv_media/Downloads/Forschung/Informationsbrosch%C3%BCre.pdf)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Dynamic Simulation of Heat Treatment Processes

- Rotary Kilns
- Shaft Kilns
- Tunnel Kilns
- Roller Kilns
- Combustion Processes
- Measurement of thermophysical Material Properties
- Intensive Cooling
- Drying Processes