

Experimental unit for testing of catalysts in microscale

Description/Parameters

Continuous catalytic unit with fix-bed microreactor (stainless steel, i.d. 5-6 mm) for simulation of heterogeneous reactions in the gas phase especially for reactions for waste gas cleaning. Suitable for simulation of waste gas containing up to 5 different compounds including water vapour. For analysis of inlet and outlet reaction mixture, on-line IR analysers for N_2O analysis (GMS800, Sick) and NO/NO_2 analysis (ULTRAMAT 6, Siemens) with catalytic converter (TESO), FTIR (Nicolet) or GC/TCD/FID are available.

Utilization/Services

Testing of solid catalysts in grain form for catalytic reactions in the gas phase: evaluation of activity, selectivity and long-term stability and deactivation.

- Reactions: catalytic decomposition of N_2O and NO , catalytic oxidation of CO .
- Steady state experiments, temperature programmed reaction.
- Typical concentrations of inlet mixture (max. 5 compounds): 0 – 3000 ppm N_2O , 0-3000 ppm NO , 0 – 3000 NO_2 , 0- 21 mol.% O_2 , 0-3 mol.% H_2O , 0 – 2000 ppm CO , 0 – 3000 ppm CO_2
- Weight of catalyst: 0.1-0.3 g of catalyst in the grain form (0.16 – 0.315 mm).
- Total volume gas flow: 50 - 200 ml min^{-1} (20 °C, 101 kPa).
- Temperature range: from ambient to 700 °C.
- Pressure: atmospheric.

