

Combustion Technology

Safety and security

combustion Technology

Students are able to account for incinerators energy and materials for over-stoichiometric conditions. They can calculate the requirement and the composition of the exhaust gas for a predetermined heat generation. You can calculate criteria for stable ignition, flashback of the flame, the flame blown off and minimum ignition energy. They know the conditions for explosions and detonations. They can use it to interpret thermal and safety incinerators.

- ▶ Characterization of gaseous, liquid and solid fuels, oxygen and air supplies
- ▶ Composition of the combustion gas, influence air ratio, amount of exhaust gas, gas equilibria Dissociated components
- ▶ Combustion gas temperatures, combustion technology efficiency, energy efficiency, condensing technology
- ▶ Premixed flames, ignition, reaction mechanism, flame speed, quenching distance, ignition energy, stability
- ▶ Diffusion flames, mixing, flame length, stability
- ▶ Explosions and detonations
- ▶ Combustion of liquid fuels, mechanism, combustion rate, atomization
- ▶ Combustion of solid fuels, pyrolysis
- ▶ Examples of burners and furnaces

Lecture with exercises and experiments

thermodynamics, chemistry

- ▶ 3 SWS
- ▶ Attendance: 42 hours
- ▶ Self-study: 78 hours

4 CP, exam 120 min

Prof. Dr.-Ing. E. Specht

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