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FRAUNHOFER INSTITUTE FOR ENVIRONMENTAL, SAFETY, AND ENERGY TECHNOLOGY UMSICHT
INSTITUTE BRANCH SULZBACH-ROSENBERG


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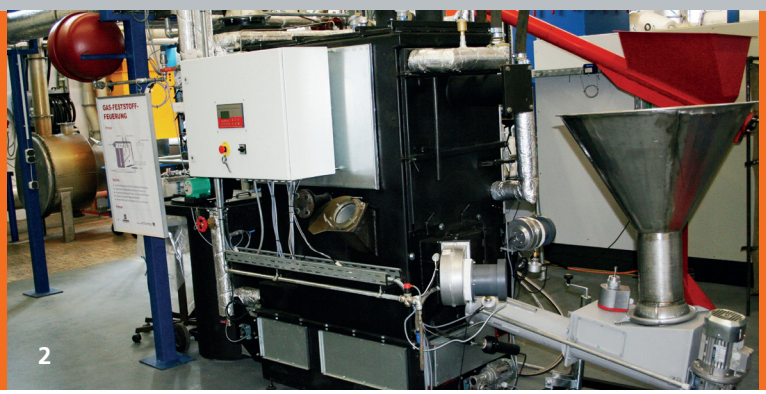
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1 *Combustion of draff pellets.*
2 *Modified furnace.*

PRODUCT AND PROCESS DEVELOPMENT

PLANTS FOR THE ENERGETIC UTILIZATION OF BIOGENIOUS RESIDUES AND WASTE

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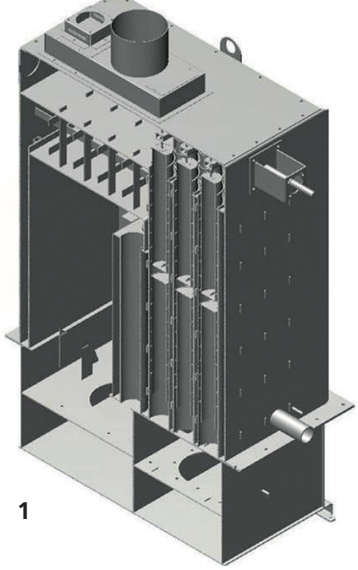
The energetic utilization of biogenous residues, production residuals as well as waste material can reduce climate-damaging CO_2 emissions and develop comprehensive economic potentials. Against this background Fraunhofer UMSICHT develops efficient and economic concepts for products and processes in the fields of combustion, pyrolysis, flue gas cleaning as well as their system integration.
For a wide range of feedstocks we offer manifold applications and corresponding plant and process engineering. We will support you from the idea, the plant and process development, the design and construction, the pilot plant construction and operation through to the marketable product and the process implementation.

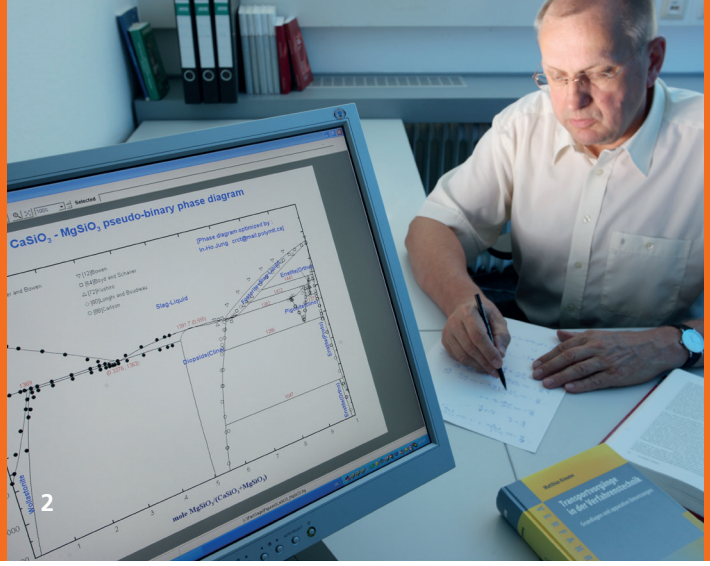
Keywords

- Alternative biogenous fuels
- Thermal waste utilization
- Firing technique
- Thermal processes
- Flue gas cleaning
- Filter development
- Plant design
- Pilot plant construction
- Test operation

Target Groups

- Firing systems construction
- Filter technology
- Energy management
- Waste management and recycling industry
- Utility companies
- Plant construction
- Environmental technology
- Production plants





1 *Boiler construction.*

2 *Process design.*

3 *Pilot plant construction and testing.*

Technological equipment

Software

- Calculation programs on the process-related design
- Flow simulation and optimization by means of CFD
- CAD-based construction
- Central plant control technology, data collection and evaluation for test operation
- Fuel database from comprehensive combustion tests

Fuel technical center

- Furnaces (30 - 440 kW) (grate stoker furnace, furnace with ridge grate, fluidized fuel incinerator, gas solid combination boiler, rotary kiln, pyrolysis reactor)
- Flue gas cleanup according to 17th BImSchV [German Federal Emission Protection Directive for waste incineration] (ceramic filter with absorbent, activated carbon filter, electrostatic precipitator, pebble bed hot gas filter)

Measurement techniques / Analytics

- Fuel and residue laboratory
- Continuous online raw flue gas and clean gas analysis for combustion and product gases, gravimetric dust measurement, cascade impactors for nanoparticles, measurement of tar and C_XH_Y
- Thermal imaging camera

Our service

- Concept development of plants and processes for the energetic use of biomass, residues and waste materials
- Development and testing of combustion and flue gas cleaning plants
- Adaptation of fuels and plant technology
- Optimization of furnace and filter technology
- Examination of the separation behavior of absorbants
- Thermotechnical process design
- Plant dimensioning
- Material selection and examinations on corrosion of specific components
- Construction of pilot plants
- Test plant operation with use of the infrastructure of the combustion center
- Scientific examinations and studies on system integration, feasibility, economic efficiency and ecology of processes and plants
- Scientific support with commissionings
- Test and optimization of installation engineering by order

Your benefit

- A competent partner for research and development
- A long experience in the development and testing of innovative plants and processes
- Efficient and customized solutions for the energetic utilization of biogenous residues and waste materials
- Practical testing of alternative feedstocks
- Experience form more than 300 combustion tests
- Competitive advantages due to energetic utilization of production residuals
- Provision of the infrastructure of the combustion center for testing and optimization of plants
- Scientifically founded assessment of process and installation engineering
- Support when introducing new products on the market