

The Mineralogy Team

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Head of specialist department, fuel quality and use, residues, geochemistry, R&D projects

Dr. rer. nat. Matthias Dohrn, geoscientist
Laboratory management, radiographic analyses, DTA/TG, thermochem. simulation, R&D projects

Uwe Diehr, chemical technician
Laboratory safety, asbestos analyses, X-ray fluorescence, scanning electron microscopy

Engelbert Dumblus, record-keeper
Electronic capture of reports, know-how database, sample preparation

René Luhmer, M.Sc., geoscientist
Laboratory equipment/organisation, X-ray diffractometry, asbestos analyses, scanning electron microscopy, polarised light microscopy

Sebastian Mauer, chemical laboratory assistant
X-ray fluorescence, asbestos and online analyses, capture of measurement data, sample preparation

Thomas Möltgen, industrial mechanic
Sample preparation, hot-stage microscopy, X-ray fluorescence, sample photography and management

Manfred Saigge, chemical technician
Power plant residues, landfills, recycling, solids analysis and sampling

Dr. rer. nat. Sarah Wallus, chemist
Power plant by-products and landfills, geochemistry, special analyses

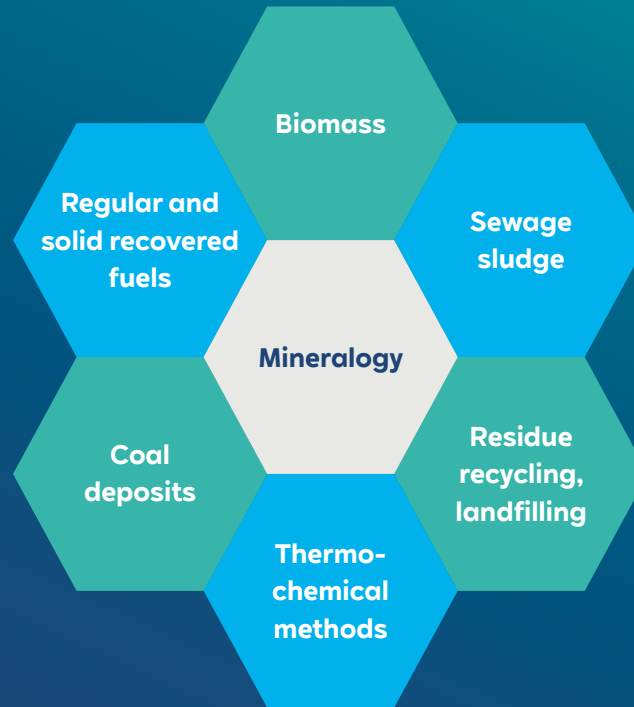
Where we belong

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RWE

Mineralogy

Material process analysis
and advice on using energy
resources

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Our Remit

Fuel-related research and development surrounding the operation of power plants fired with coal, biomass, sewage sludge and residues

- **operations-oriented**
- **forward-looking**

Activities

- Analysis of fuel-related problems as well as residue- and emissions-related issues of thermal processes
- Evaluation of plant condition incl. recommendations for fuel/raw-material use and plant operation
- Evaluation of steam coal deposits
- Development of chemico-physical bases for the operation of conversion plants supplied with complex fuels
- Evaluation of thermochemical mineral reactions, laboratory-based simulation calculations
- Collection, retention and provision of operational and scientific know-how
- Carrying out research orders, supervising (student) research projects
- Evaluation of industrial residues in terms of re-use, recycling and landfilling

What is important to us?

Holistic consideration of process chains

Deposit / fuel/ raw material



Power plant / high-temperature conversion plant

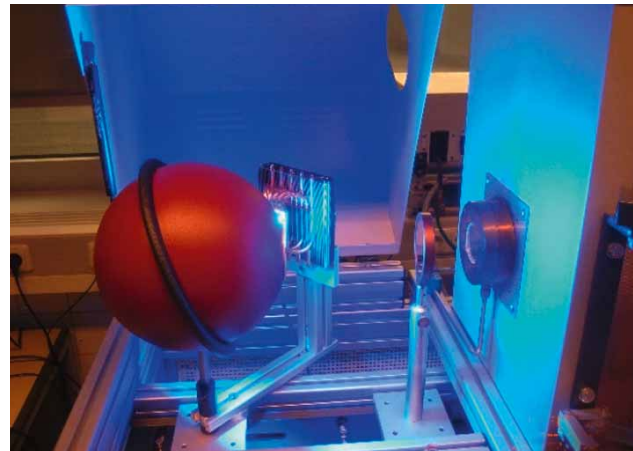


Emissions, residues, recycling, landfills

Our Methods

Laboratory methods used

- X-ray fluorescence (XRF) analysis and quantitative X-ray diffraction analysis incl. Rietveld refinement for element and mineral phase determination
- Scanning electron microscopy (SEM/EDX)
- Thermo-analytical methods
 - Differential thermal analysis/gravimetric analysis with coupled mass spectrometry and FTIR
 - Hot-stage microscopy
 - In-situ high-temperature diffractometry
 - Series of tempering tests
- Reflected and transmitted (polarised) light microscopy



We also use

- Combustion and gasification plants of different sizes, from a process development unit to a commercial-scale plant
- Facilities of university and research institutes
- Complex data-evaluation programs

Our Analyses

Reference tasks

- Characterisation of fuels for combustion plants incl. recommendations for trouble-free operational use
- Preparation of lignite mining and power plant supply schemes
- Assessment of boiler condition
- Evaluation of biomass suitability for power plants
- Evaluation of fuel effects on emissions such as NO_x , HCl or SO_2



What we analyse

- Fuels and correlative fouling and corrosion layers
- Mineral residues such as ashes, deposits, dust or molten material
- Deposits and foreign matter from technical processes
- Asbestos, refractory materials
- Special inorganic samples from opencast mines, power plants, customer plants
- Geochemical conditions of deposits and landfills