

## EXAMPLES OF PROJECTS

- ▶ Processing of raw materials using flotation, leaching, ion exchange
- ▶ Optimization of crystallisation and precipitation processes for inorganic and organic components
- ▶ Characterization of dissolution processes in salt mining and salt processing
- ▶ Sealing of surfaces of different materials
- ▶ Development and evaluation of grouts for mining industry, civil engineering and tunneling
- ▶ Development of construction materials for civil engineering (cements, anhydrite flowing screed)
- ▶ Gypsum based materials
- ▶ Development of processes for heavy metal immobilization
- ▶ Optimizing of evaporation processes
- ▶ Solidification / inclusion of residual materials
- ▶ Preparing of mass and energy balances



**We guarantee high quality and in time results.**

We also offer training courses in chemical engineering and concerning solid-liquid-phase equilibriums. We are looking forward to assist and help you solving any task.

Please find more information on our homepage  
[www.ibz-freiberg.de](http://www.ibz-freiberg.de)

**REACH YOUR AIM TOGETHER WITH  
OUR KNOW HOW!**



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*We do research for you!*



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**CONTRACT RESEARCH AND  
ANALYTICAL SERVICES**



## WE OFFER RESEARCH AND DEVELOPING WORK OF THE FOLLOWING FIELDS

- ▶ Crystallization and precipitation of chemical solutions
- ▶ Kinetics of inorganic reactions
- ▶ Water treatment (purification, conditioning)
- ▶ Characterization and determination of crystallization paths during evaporation or cooling (development of stable and metastable phases)
- ▶ Charakterization of dissolution and leaching processes
- ▶ Tempering and crystallitation processes at high temperatures
- ▶ Colloidal milling and dispersing of solids in liquids
- ▶ Prevention of scale formation during evaporation, heat exchange, etc.
- ▶ Synthesis of inorganic compounds
- ▶ Ion exchange
- ▶ Flotation processes
- ▶ Liquid-liquid and / Liquid-solid-extraction
- ▶ Distillation, rectification
- ▶ Cleavage of emulsions
- ▶ Flocculation
- ▶ Scale up of processes
- ▶ Immobilization of contaminants
- ▶ Development of construction materials based on calcium sulphate
- ▶ Development of back fill for mining industry
- ▶ Development of construction materials based on anhydrite ( $\text{CaSO}_4$ ) and gypsum ( $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ )
- ▶ Development of grouting materials for mining industry
- ▶ Development, testing and evaluation of materials and technologies for sealing of soils and rocks
- ▶ Determination of leaching processes and their kinetics



## IN ADDITION TO CONTRACT RESEARCH WE OFFER THE FOLLOWING

- ▶ Scale up from laboratory into pilot scale and consulting in production size
- ▶ Determination of thermal decomposition of inorganic as well as organic compounds at temperatures up to 1500°C by TG/DTA measurements
- ▶ Particle size analysis (laser diffraction analysis, sieve analysis)
- ▶ Determination of compressive, tensile and bending tensile strength
- ▶ UV-VIS measurements on organic and inorganic compounds
- ▶ Measurements of viscosity
- ▶ Determination of breaking indeces, melting point and boiling point
- ▶ Shipment of dangerous goods
- ▶ Characterization of construction materials
- ▶ Determination of permeability and porosity of soils and rocks

All investigations are realized user-specific in close cooperation with the clients. Short realization times and confidentiality are main aspects of our work.

All investigations follow good laboratory practice guidelines and base on the state of the art. We use wet chemical analysis and photometric techniques.

More analysis and characterization of solids can be shortly be purchased in accordance with our cooperating partners.

