



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.

*We do research for you!*



**IBZ - Salzchemie**  
GmbH & Co. KG

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



**CONSULTING  
GEOTECHNICS & GEOCHEMISTRY**

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## DEVELOPMENT AND TESTS FOR

- ▶ Sealing of water leakages in mining, shaft- and tunnel engineering
- ▶ Sealing of boreholes even under high temperature and pressure
- ▶ Sealing of salty leakages in kali and rock salt mining
- ▶ Waterproofing of construction sites
- ▶ Encapsulation of contaminants
- ▶ Reduction of permeability over wide ranges

## GROUTS CAN BE

- ▶ Sodium silicate / silica sol
- ▶ Cement/ cement-bentonite suspension
- ▶ Solutions resulting in formation of minerals (gypsum,  $\text{CaCO}_3$ ,  $\text{Ca(OH)}_2$ ,  $\text{Fe(OH)}_3$  etc.)
- ▶ Synthetic materials like epoxide, polyurethane, acrylate
- ▶ Latex
- ▶ Bitumen emulsion



## GEOCHEMISTRY

- ▶ Characterization of compatibility of different solutions during grouting in horizons of reservoirs
- ▶ Stopping of precipitating gypsum, anhydrite and calcium carbonate as layers in pipes, recuperators and pumps as well as during mixing of different pore solutions
- ▶ Stabilization of solutions against formation of  $\text{BaSO}_4$  and other difficultly soluble compounds
- ▶ Prevention of formation of iron hydroxide
- ▶ Dissolution of scale using chelating agent, acids, alkalis etc.

## SELECTED REFERENCES

- ▶ **Kali + Salz**  
„Provoked synthesis of minerals“  
Sealing of a salty reservoir
- ▶ **Mosaic**  
Time Released Grout  
Formation of gypsum using oversaturated solutions
- ▶ **Gremjatschinskij**  
Development of possibilities to seal shafts  
Test and development of
  - ▶ silica sol
  - ▶ acrylates
  - ▶ cement / bentonite
- ▶ **BAUER Spezialtiefbau**  
Further development of materials containing silica sol

## WE OFFER

- ▶ Enormous tests in lab and pilot scale (up to  $1 \text{ m}^3$ ) for optimization and characterization, determination of penetration capacity, residual permeability and mechanical properties
- ▶ Determination of properties like sieve analysis, moisture content, density
- ▶ Performance of water retention test
- ▶ Determination of permeability in sedimentary and hard rock
- ▶ Chemical analysis of flowing solutions
- ▶ Selection of grouting method, -strategy and -material
- ▶ On site quality control
- ▶ Preparation of test reports and documentation

