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FIA Forschungsinstitut für Aufbereitung
(Academy of Sciences – Institute for Mineral Processing)
January 1954:
Foundation as part of the Academy of Science of the GDR

- Almost 40 years of basic and applied research in mineral processing
- Over 400 scientists, engineers, technicians and lab staff
- December 1991: Closing and termination
- 1992 Foundation of UVR-FIA GmbH
Management: Dr.-Ing. Henning Morgenroth
           Dr.-Ing. Andre Kamptner

Staff: 30, thereof:
        11 Process engineers
        1 Chemist
        18 Technicians and laboratory staff
        + Consultants (scientists, engineers)
        + Student apprentices

Equipment: over 350 mineral processing apparatus and machinery
           ca. 1400 m² labs
           ca. 1600 m² technical centre

Turnover: 1.6 Mio € per year (2014)
Main Activities

Comminution and Classification

Mineral Processing

Particle Technology

Material Analysis

Special Products

Recycling
Research and Engineering Services

- Development of beneficiation processes and recycling technologies
- Laboratory test work and pilot plant operations
  - Crushing, grinding and sieving
  - Sorting (magnetic separation, gravity separation, flotation)
  - Solid-liquid separation
- Consulting, process optimisation
- Mineral and chemical analyses
- Process design and basic engineering
Recent R&D projects/ Mineral Processing

- Rare Earth ore (Canada)
- RE bearing tailings (Brazil)
- Lithium ore (Erzgebirge, Canada)
- Phosphate ore (Saudi Arabia)
- Quartz-Clay deposit (Germany)
- Rock salt (Germany)
- Tungsten ore (Europe)
Recent R&D projects/ Recycling

- Flotation of sulphidic residues
- Beneficiation of metallurgical residues (steel slag, vanadium sludge, converter sludge)
- Density separation of selected WEEE fractions (cable scrap, shredder residue)
- Recovery of industrial diamonds
- Dry processing of Cu-bearing metallurgical dust
Publicly funded research projects/ Mineral Processing

- NANOREM: Nanotechnology solutions for in-situ soil and groundwater remediation (EU/7. RP)
- EcoMetals: Innovative eco-efficient bio-hydrometallurgy process for the recovery of strategic and rare metals: primary and secondary resources (BMBF)
- Secondary Mining – Recovery of strategic elements from tailings on selected Chilean locations (BMBF)
- Sustainable mineral processing strategies for the Nam Xe REE deposits in Vietnam (BMBF)
- Beneficiation of fine-grained domestic In/W/Sn-ores (BMBF)
Analysis/ Characterization

Physical properties:
- Grindability (BOND, ZEISEL, HARDGROVE)
- Grain size, specific surface
- Density, moisture, rheological behavior

Mineralogical and chemical analysis:
- Microscopic studies and chemical analysis
- X-Ray Diffractometry, X-Ray Fluorescence
- Atom Absorption Spectrometry (AAS)
Variety of Materials

- Waste materials
- Coal, Oil shale, Graphite
- Sufidic and Oxidic Ores
- Renewable raw materials
- Rock, Sand, Industrial minerals, Salt
- Pigments
- Metal powder
- Filler

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Laboratory Facilities (Selection)

- Comminution Lab
- Chemical Analyses Lab
- Granulometric Analyses Lab
- Flotation Lab
Technical Centre

Pilot tests
up to 1 t/h feed rate

- crushers, mills
- screens, sifters
- spirals, jigs, tables
- magnetic separators
- flotation banks
- dewatering equipment
- storage and feeding
Comminution
Technical centre – powder processing

Drum mill with air separator
Flotation Units – 5/10/20/50/100 l-cells
Technical centre – Furnace slag processing

Shaking table for silver recovery
Technical centre – Gravity separation

Spiral separator and jig
Column flotation, Rare earth ore

Ashram Deposit

- Carbonatite with approx. 2% TREO
- Monazite, Bastnaesite, Xenotime

Testwork (PEA, PFS)

- flotation (single stage, multi stage)
- locked cycle grinding
- desliming
- flowsheet design
Cell flotation, Rare earth ore

**Fluorite concentrate**

**RE concentrate**
Fluor spar – baryt processing: From lab scale flotation …
... to pilot tests (feed rate e.g. 700 kg/h) ...
.. to flow sheet design, basic engineering, … , and start-up
Unloading of 25 t hard coal from South Africa
Tests with over 100 tons coal (hard and lignite) were carried out
Technical centre – Steel slag processing

Ball mill 1.0 x 1.5 m with screw classifier
Technical centre – Steel slag processing

Dewatering unit for steel slag sludge