

NOMECOR

Novel hybrid method of copper recovery from flotation dumps

Sub-project 3: Use of mineral residues for cement production

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Partner:

- G.E.O.S. Ingenieurgesellschaft mbH, Freiberg, Germany
- Helmholtz Institute Freiberg for Resource Technology at the Helmholtz Centre Dresden-Rossendorf
- KIT Institute for Technology Assessment and Systems Analysis (ITAS)
- Institute of Nonferrous Metallurgy, Gliwice, Poland
- Hydrogeometall POLZENITH GmbH & Co. KG, Lubin, Poland

European copper mining is concentrated in Poland. Approximately 1.2 billion tonnes of flotation residues are currently on stockpile. On the one hand, they contain valuable materials and, on the other hand, they pose an environmental problem. In the German-Polish joint project "NOMECOR", innovative methods of mineral processing and biohydrometallurgical processes are developed and applied in order to recover valuable metals such as copper from flotation residues from copper mining. The remaining mineral residues are converted into belite (dicalcium silicate) using a novel calcination process. Belite is one main component of cement and can be used variably in the construction industry. The project should enable the following aspects:

- the use of mineral residues from flotation for the production of hydraulic binders, e.g. for the stabilisation of flotation residues, possibly with separation of valuable metals and pollutants
- the minimisation of environmental risks from tailings through the orderly dismantling and recycling
- the reactivation of the areas used by the stockpiles for higher quality land use
- an assessment of the potential for Germany and Poland, including a visualisation of the results

In the project, the KIT-ITC conducts laboratory-scale experiments, estimates of investment costs and energy consumption as well as material costs and revenues. Based on these data, the sustainability of possible future projects will be evaluated by the Institute for Technology Assessment and Systems Analysis.

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