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RESOURCE RECOVERY FROM RED MUD
Intensified poster presentation session

Maximilian Herbeck, Christian Adam

Federal Institute for Materials Research and Testing,
Unter den Eichen 87, D-12205 Berlin, Germany
Division 4.4 Thermochemical Residues Treatment and Resource Recovery
Overview

- One active alumina plant in Germany
- Annual output: 650,000 t of BR
- Additional approx. 19 million t in disposal site
- Major composition: Fe$_2$O$_3$ (52%), Al$_2$O$_3$ (16%), TiO$_2$ (11%), SiO$_2$ (5.9%), CaO (4.8%)
• 3 digestions tested (2 MW-assisted, 1 thermal)

• Instrumental analysis with ICP-OES and ICP-MS

• 43 elements, thereof 35 trace elements
Carbothermic reduction

- BR-C-mixture in graphite crucible
- 1600°C, Ar-flushed
- ESEM-EDX showed two internal slag phases
- Al-rich phase (grey)
- Ti-rich Phase (light grey)
Conclusion and Outlook

- Industrial waste with huge amount
- Contains several elements relevant for high-tech-industry incl. critical raw materials
  → source for secondary raw materials!
- Separation of iron with carbothermic reduction without other additives

Further experiments:

BR treatment in rotary kiln and EAF

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Thank you for your attention!

Maximilian.Herbeck@bam.de