

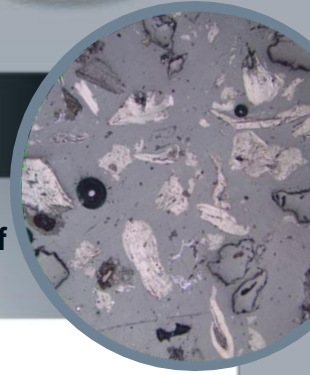


TECH FOCUS 1

ERT and mineralogy application for large-scale tailings characterisation

Tailings valorisation potential may be determined through the development of models that integrate spatial and mineralogical data of acid mine drainage sites. The outcomes inform the most suitable bioremediation and rehabilitation strategies. Electrical resistance tomography (ERT) affords an in-depth analysis of a tailings storage facility (TSF), indicating how strongly a material inhibits current flow. Its relationship with tailings mineralogy was investigated for selected terraces of a TSF in the Witwatersrand Basin.

[Read more here.](#)



TECH FOCUS 2

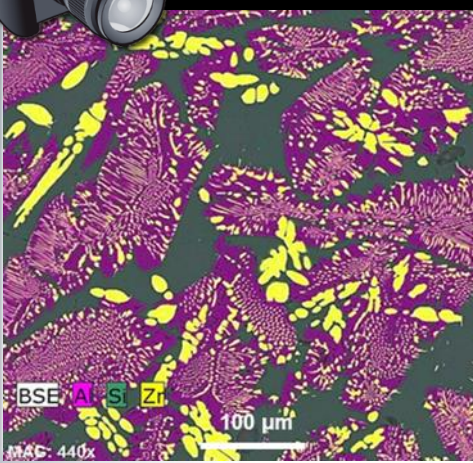
Natural graphite: Characterisation of the new critical mineral

As an important critical mineral, graphite is used in many industrial applications, including refractories, electronics, metallurgy and steelmaking, with use in emerging applications like fuel-cells and batteries likely to increase demand. Graphite is classified by flake size for marketing purposes. Mineralogical investigations can quantify graphite, its flake sizes, shapes and liberation size in ores using such techniques as X-ray diffractometry and optical microscopy.

[Read more here.](#)



MINTEREST



SEM-EDS elemental map of AZS ($Al_2O_3-ZrO_2-SiO_2$) powder, with the Al and Zr phases displaying intricate exsolution textures. This material is used to create refractory materials (e.g., bricks) for glass-making furnaces, owing to its high resistance to corrosion when in contact with liquid glass.

ROCK



New Mineralogy team members



We welcome four new members to the team: Shinelka Singh, Thabang Somo, Dineo Mashaba and Beberto Baloyi. All holding MSc degrees, Shinelka joins us as a senior scientist in automated mineralogy, Dineo and Beberto join us as scientists working predominantly in automated mineralogy, and Thabang joins us as a scientist in modelling, data analysis and software development. We look forward to their contributions to the Division.

MINERALOGY IN THE FIELD

SAIMM GEOMETALLURGY CONFERENCE 4-7 September 2023

Members of the Mineralogy team participated in the recent SAIMM conference "Geomet meets Big Data", held in Stellenbosch, for which Mintek was a Silver sponsor. Marian Manuel presented a paper on the application of electrical resistivity tomography as a physicochemical tool for tailings valorisation and remediation strategies.



DISCUSSION FORUMS, SHORT COURSE October, November 2023

Marian Manuel participated in the United Nations Environmental Programme discussion forum on knowledge gaps in tailings management. She also presented Mintek's role in the circular economy at the National Science and Technology Discussion Forum, to address the question: "How do publicly funded institutions contribute to sustainable socio-economic development?" Dr Desh Chetty presented on battery minerals at the 8th SGA-IUGS-SEG-UNESCO Short Course on African Metallogeny, covering the role of mineral wealth for Africa's energy transition.

PRIS 2023 2-3 November 2023

Dr Parisa Doubra attended the annual Postgraduate Research and Innovation Symposium held at the University of KwaZulu Natal. She represented Mintek as a judge in the engineering section for oral and flash presentations given by masters and doctoral candidates, with awards made for the best presentations.



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● **SAVE THE DATE! Mineralogy Open Day on 31 May 2024**

MINERALOGY FACILITIES & CONTACT DETAILS

Sample preparation | X-ray diffraction | Scanning electron microscopy | Electron probe microanalysis | Optical microscopy
Sampling | Automated mineralogy facility – QEMSCAN, MLA, TIMA | Micro-XRF imaging | GIS facility | X-ray computed tomography

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90 years of Excellence

in Mineral Innovation



1934 - 2024