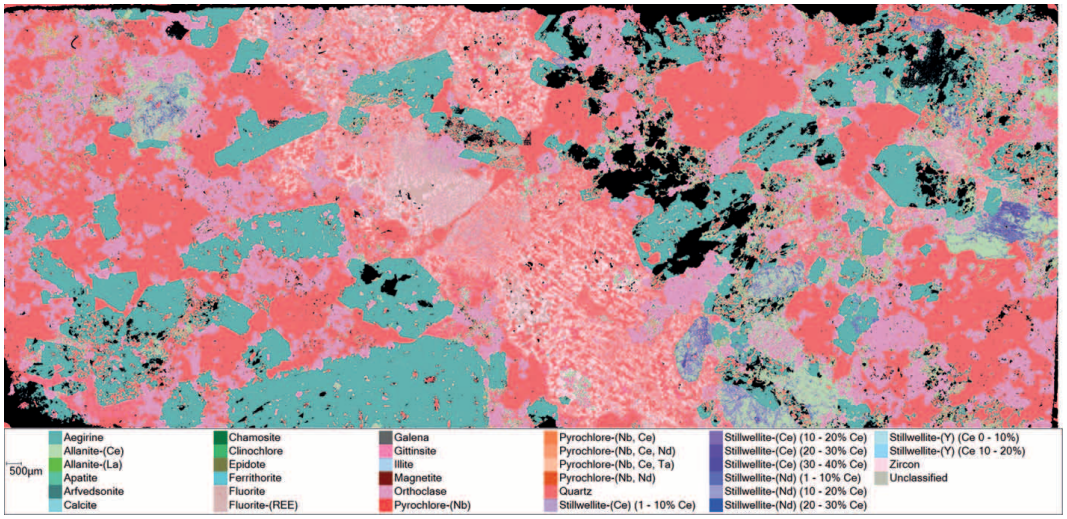
ZEISS

NEXT GENERATION MINERALOGY

ZEISS has long been a dedicated mining industry partner in the field of automated mineralogy, but its analytical solutions are now at the core of mine and plant decision making

Mining in the 21st century

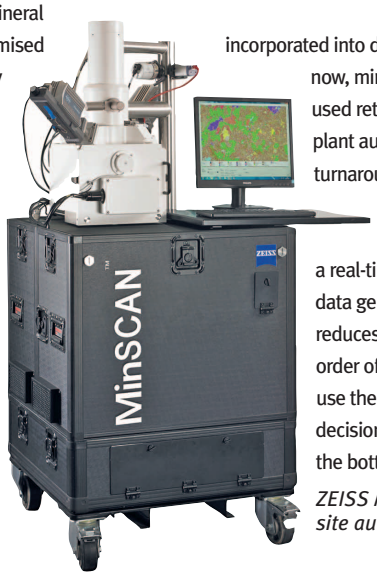
Mining in the 21st century is an increasingly challenging industry, with greater demands on scientific analysis than the mining operations of the last century. Remaining ore deposits are of lower grade, higher textural complexity and are under greater operational cost constraints. Due to increased geopolitical tensions and falling commodity prices, mining companies are seeking significant scientific validation to reduce the risk within the mine model before investing in mining projects. Moreover, once an operation is underway, it is essential that mineral processing flowsheets are optimised to maximise economic recovery and minimise losses. Increased mineralogical understanding is essential in order to address modern challenges across the entire mining value chain from exploration to refining.



Mineral map produced by ZEISS Mineralogic Mining

Evolution of MinSCAN

Over the past 30 years, ZEISS has been a dedicated mining industry partner in the field of automated mineralogy. This pedigree has been proven over the last two years during the development of mine site automated mineralogy technology culminating in the launch of the MinSCAN system. MinSCAN is a ruggedised automated mineralogy system designed for use by metallurgists at the mine site to enable mineralogical information to be incorporated into daily plant decision making. Up to now, mineralogical information has been used retrospectively mainly to support plant audits. This was due to the turnaround time of the data being several weeks, which is incompatible with the ability to use the data in a real-time environment. By moving the data generation to the minesite, this reduces the overall analysis time by an order of magnitude, making it possible to use the data to make short term decisions which can impact the future of the bottom line.



ZEISS MinSCAN – ruggedised mine site automated mineralogy system

World's largest microscopy company

Being the world's largest microscopy company with the broadest portfolio of mineralogy and textural analysis solutions means our range of end to end solutions for mine-planning right through to processing and refining is unparalleled. During exploration, our quantitative automated mineralogy technology is combined with LA-ICP-MS to determine the location of porphyry deposits via mineral vectoring. In the feasibility phase of a project, our optical microscopes are a key tool used to quantify mineralisation and determine geological processes which have shaped a deposit. For process development studies, our high resolution X-Ray imaging and analysis systems are used to model heap leach kinetics using in-situ flow cells and quantify rock breakage technologies for their ability to produce large surface area to volume ratio particles. These same X-Ray systems are used by mineral processing plants to rapidly analyse tailings samples in PGM operations to ensure confidence in the recovery of valuable PGM bearing minerals. Once a valuable mineral has been concentrated, our optical inspection optical microscopes are used to ensure product quality and protect the reputation of our customers.

Across the entire mining value chain, ZEISS has analytical solutions to maximise the value of your assets.

Mine site mineralogy data enables real-time optimisation of extraction and mineral processing

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