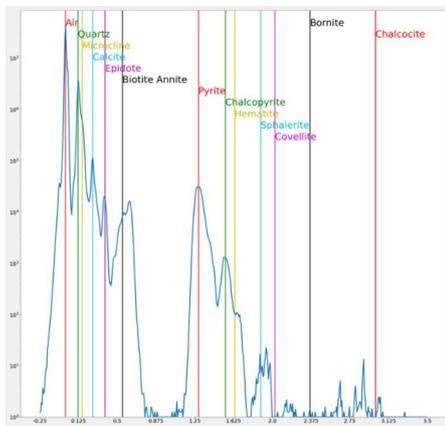


Your geometallurgy goals realized with maximum efficiency

ZEISS Mineralogic 3D for Mining



Mineral classifications based on attenuation measurements

ZEISS Mineralogic 3D applies X-ray microscopy techniques and deep learning algorithms to execute automated mineralogy analyses in 3D that provide particle identification, mineral classification, and data outputs, including liberation and association measurements.

Three immediate benefits:

1. The sample preparation process is greatly simplified, compared to that required for 2D analyses
2. There are no stereological assumptions as every grain is viewed in full
3. The time to actionable data is greatly reduced

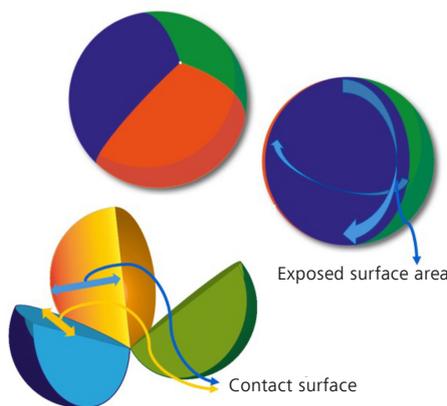
Mineral Classification

Making full use of the imaging capability of the X-ray microscope, enhanced by DeepRecon noise-reducing deep learning algorithms, Mineralogic 3D automatically classifies the mineralogy of the sample based on attenuation measurements.

The ability to classify the mineralogy in tomographic scans is unique and when combined with the morphological measurements of the 3D reconstructed entities allows the calculation of standard mining-relevant outputs.

Mineralogy, Liberation, Associations

Understand your mineral processing like never before. Where 2D automated mineralogy offers liberation based on exposed surfaces or edges, associations based on linear contacts, and modal mineralogy based on phases exposed on the surface of the sample mount, Mineralogic 3D measures liberation based on the volume of the grains and their exposure on the surface of the unaltered particle. Associations are based on full mineral surface contacts with other phases, and modal mineralogy accounts for all grains – those exposed on the surface of the particles and those obscured within.



3D evaluation of mineral particles delivers an un-obfuscated view of associations, liberation, and modal mineralogy



Seeing beyond



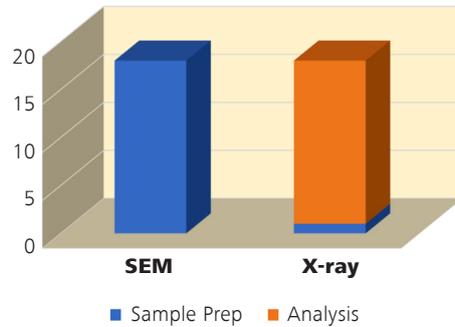
Mineralogic 3D combines X-ray tomography with advanced machine learning to provide a true measurement of the sample with no obscured phases.

Ore Body Characterization

Investigate your sample in its true form, without mechanical alteration, and see 100% of it. ZEISS Mineralogic 3D offers an unparalleled ability to understand composition, mineral relationships, and fabric of the geological materials under scrutiny, including that of locked grains. Taking advantage of the ZEISS Xradia flat panel detector to obtain a larger field of view and of the deep learning image processing improvements provided by DeepRecon Pro, Mineralogic 3D offers unrivaled resolution, mineral classification, and measurement of samples in their natural state. No longer are assumptions on the representativity of the exposed sample relevant, nor are there issues with stereology.

Maximize Throughput

Enjoy higher analysis throughput with simple sample handling. Dispense with the requirement to mechanically alter your samples to expose flat surfaces for analysis and then hope to reveal hidden phases. Unlike sample preparation for the SEM where graphite is added to act as a particle separator, the Mineralogic 3D analysis of comminuted ore does not demand the use of additives to help maintain particle separation, nor of a resin block to hold particles fixed in space; instead, it makes full use of machine learning to ensure that every particle is understood in its entirety as a sole individual with exposed surfaces and enclosed mineralogy fully evaluated and quantified.



The simplicity of sample preparation combined with advanced analytical techniques results in a marked time saving in delivery of results by Mineralogic 3D

ZEISS Xradia Versa XRM
with primary workstation
Standard FDK Reconstruction



ZEISS Xradia Context microCT
with primary workstation
Standard FDK Reconstruction



Mineralogic 3D

- Deep Recon Pro Software**
- XRM High Performance Workstation**
- FPX Flat Panel Extension**
- ZEISS Scout-and-Scan**
- ZEN Analyzer**
- ZEN Module Macro Environment**
- ZEN Intellesis**

Optional extras:
ORS Dragonfly, ZEISS Autoloader



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