

## UMF Equipment – Field Emission Scanning Electron Microscope TESCAN MIRA

Scanning Electron Microscope (SEM) uses a focused electron beam to scan and study surfaces of solid objects. The electron beam interacts with the sample and generates a variety of signals, such as secondary electron (SE) and characteristic X-rays etc. Secondary electrons and backscattered electrons (BSE) are commonly used for morphology / topography imaging and produces high magnification image. Other signal such as characteristic X-rays are used for elemental analysis.

TESCAN MIRA is a High-Resolution (HR) Analytical SEM with a high brightness field emission electron source (FEG). This equipment features an innovative optics design which guarantees immediate and seamless selection of imaging or analytical conditions whenever required. MIRA SEM is an efficient analytical solution for routine materials characterization, research and quality control applications at sub-micron scale.

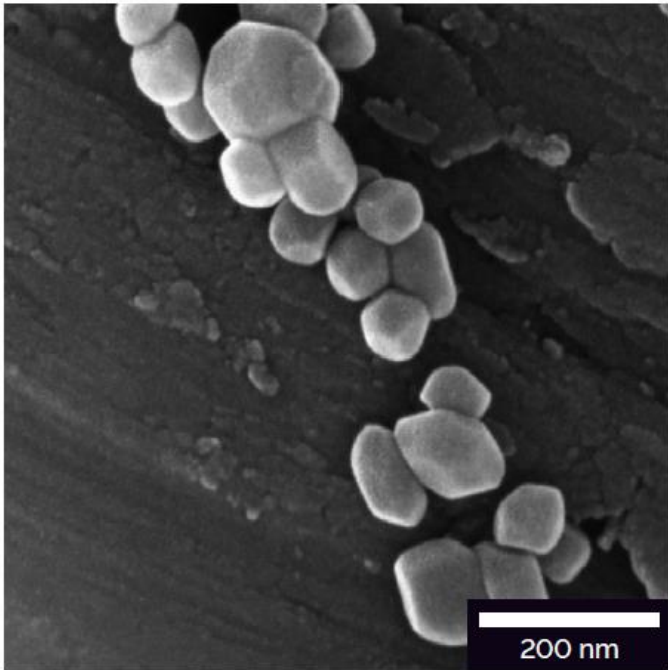
### Features:

- Imaging resolution down to 1.2 nm
- Fully motorized compucentric five-axis sample stage accommodate specimen up to 4-inch in diameter
- Apertureless optical design powered by In-flight Beam Tracing™
- Unique Wide Field Optics™ design allows imaging magnifications as low as 2× without the need for an additional optical navigation camera
- SingleVac™ mode as a standard feature for observing charging and beam-sensitive samples
- Detectors:
  - Everhart-Thormley Secondary Electron (SE)
  - Retractable Backscattered Electron (BSE)
  - In-beam Secondary Electron (In-beam SE)
  - In-beam Backscatter Electron (In-beam BSE)
- Beam Deceleration Technology (BDT) to enhance imaging performance at lower accelerating voltages
- Energy Dispersive X-ray (EDX) Spectroscopy for element identification
- Electron Backscatter Diffraction (EBSD) Analysis
- Electron Beam Lithography (EBL)

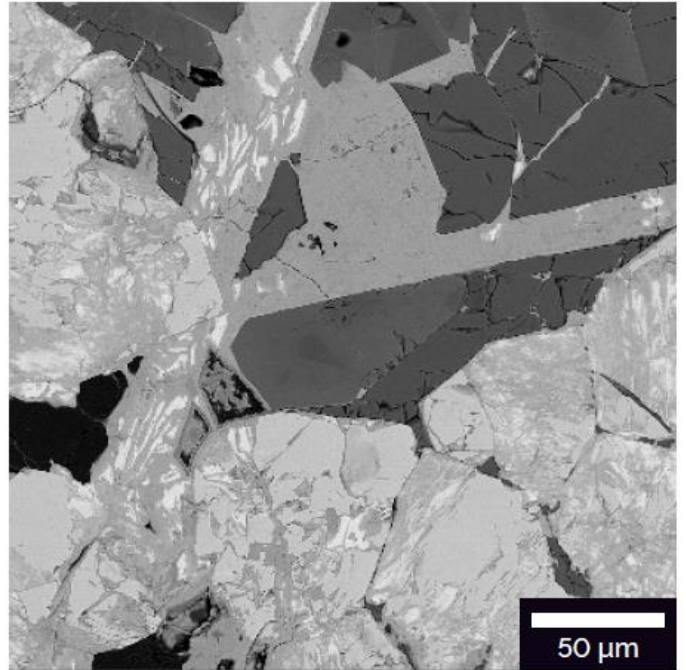
Please refer to supplier information page for further details of the system:

<https://www.tescan.com/product/sem-for-materials-science-tescan-mira/>

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TiO<sub>2</sub> nanoparticles imaged at 10 keV



Association of scandian minerals imaged by backscattered electron detector.