OLYMPUS®

Your Vision, Our Future

Instant Geochemistry and Mineralogy

X-ray Fluorescence (XRF), X-ray Diffraction (XRD), and Microscope Solutions for Earth Science Applications

Olympus provides an end-to-end range of products and solutions for the geoscience industry that enable users to characterize geological materials. Our products include high-performance portable and small benchtop X-ray fluorescence (XRF) and X-ray diffraction (XRD) analyzers and a range of petrological microscopes. This comprehensive portfolio enables rapid and real-time chemical analysis (XRF), quantitative mineralogy (XRD), and traditional optical mineralogy and petrology, providing a complete and cost-effective material characterization solution.

X-Ray Diffraction

X-Ray Fluorescence

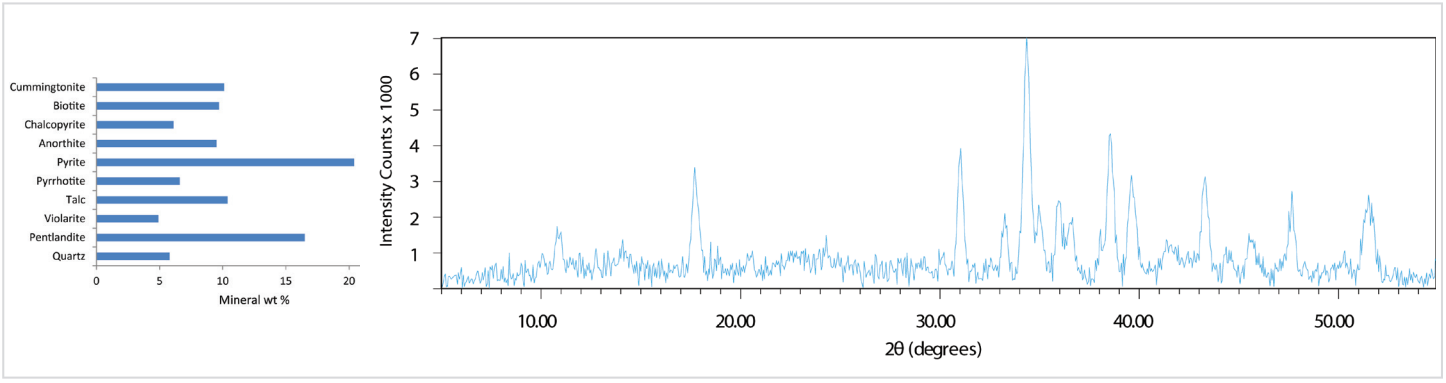
Microscope Solutions

Mineralogy by X-ray Diffraction (XRD)

Olympus provides a portable, battery operated XRD analyzer as well as benchtop XRD analyzers for fast, accurate quantitative mineralogy and mineral phase identification in a small, low-cost form factor. These unique instruments benefit from fast and simple sample preparation due to a patented sample vibration chamber which results in a superb X-ray diffraction pattern and significantly reduces preferred orientation effects associated with traditional XRD systems.

Key features include:

- Very small benchtop and portable systems
- Patented technology developed by NASA for the Mars Science Laboratory (MSL) Curiosity Rover
- Only requires a 15 mg, 150 µm powdered sample
- No need for water cooling or a large power supply (Peltier cooling and battery operation)
- Embedded software operated via Wi-Fi for flexible user control and data handling
- Fast acquisition time (only several minutes)

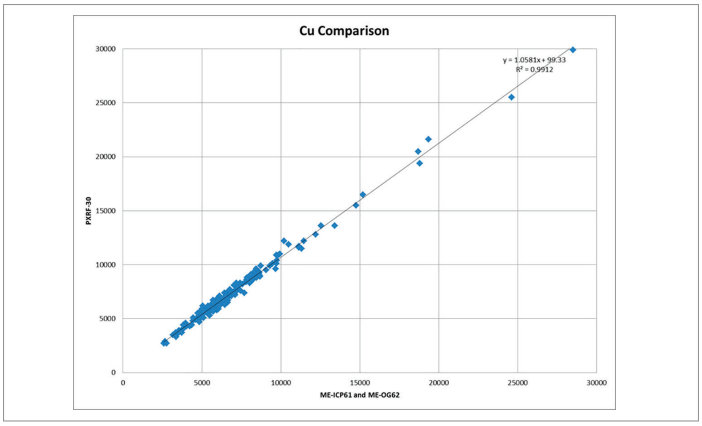


Quantitative XRD (QXRD) results derived from an Olympus BTX II™ portable benchtop XRD system on a nickel sulfide concentrate sample showing relative mineral abundance in the table (left) and processed diffraction pattern in Siroquant software (right).

Chemistry by X-ray Fluorescence (XRF)

Olympus provides a range of high-performance portable XRF analyzers to quickly, accurately, and precisely determine the chemistry of samples in situ or in the lab. Key features include:

- A variety of models to suit your budget and application
- Optimized hardware (X-ray tube, detector, and electronics) for the best detection limits, light element performance, and sampling speed
- Analyze elements from Mg (z=12) to Uranium (z=92)
- Rugged, fit-for-purpose industrial designs
- Intuitive software and data products
- Supported by an industry-leading team of application experts



This graph illustrates the excellent correlation between an Olympus DELTA® Premium portable XRF analyzer and laboratory ICP analysis for copper in soils.

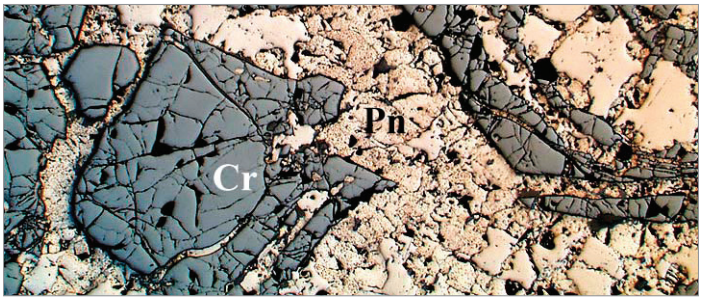
Mineralogy and Petrology by Optical Microscopy

Olympus also provides a full range of upright microscopes for use in routine mineralogical and petrological investigations. Key features include:

- A range of models, from cost-effective binocular microscopes, student, and academic configurations, to high-end customized research platforms
- Both transmitted light (for gangue/silicate mineralogy) and reflected light (for opaque/sulfide mineralogy) options combined with polarization accessories for orthoscopic and conoscopic observations
- Strain-free objectives with an anti-reflection coating for high-quality polarized light imaging and a choice of digital camera options for real-time image acquisition with excellent color reproduction, combined with advanced image analysis software for applications such as phase analysis
- Modular design for application-specific customization

Key Industries and Applications

- Education, academia, and research (archeology, agriculture, geology, geochemistry, mineralogy, environmental science, metallurgy, mineral processing, chemical and mining engineering)
- Mineral exploration and prospecting — greenfields and brownfields
- Mining operations — resource definition and grade control
- Mineral processing, extractive metallurgy, and geo-metallurgy
- Environmental monitoring, remediation, and mine closure
- Geological surveys and other related government departments
- Industrial minerals / strategic metals
- Petroleum — traditional and non-conventional oil and gas exploration



Digital photo-micrographs taken with an Olympus cross-polarized microscope showing chromite in nickel sulfides

www.olympus-ims.com

OLYMPUS®

For inquiries - contact
www.olympus-ims.com/contact-us

OLYMPUS CORPORATION OF THE AMERICAS
48 Woerd Avenue, Waltham, MA 02453, USA, Tel.: (1) 781-419-3900
12569 Gulf Freeway, Houston, TX 77034, USA, Tel.: (1) 281-922-9300
OLYMPUS NDT CANADA INC.
505, boul. du Parc-Technologique, Québec (Québec) G1P 4S9, Tel.: (1) 418-872-1155
1109 78 Ave, Edmonton (Alberta) T6P 1L8

GeosciencesAppNote_201610 • Printed in the USA • P/N: 920-405-EN Rev. A