

VANTA VMR Geochemistry LOD

VANTA Rugged. Revolutionary. Productive.

Olympus is a leader in XRF technology with a reputation for durability, quality, and accuracy. Vanta™ handheld XRF analyzers incorporate Olympus' Axon™ technology to deliver higher X-ray counts and high sensitivity for analysis of all types of mineral exploration, mining, processing/metallurgical, laboratory, and environmental samples.

Every Vanta analyzer is drop tested, features Olympus' Axon technology, and is rugged, fast, and reliable.

Vanta analyzers are capable of measuring elements from concentrations as low as single parts per million (ppm) all the way up to 100%.

The Limits of Detection (LOD) represent the calculated value using a three sigma 99.7% confidence level. The LOD for each element is a function of the testing time. Please contact your local Olympus representative for more information.

The LOD table gives an indication of the performance of the Vanta model VMR across many elements and sets of certified standards.

- LODs were developed by testing a variety of certified reference materials or standards.
- LODs are dependent on testing time, sample heterogeneity, the presence/absence of interfering elements, and the beam conditions used (kV and μ A of the X-ray tube and filter settings).
- All values are determined using multiple automatically selected beam conditions.
- The LOD is the lowest quantity of an element that can be detected in an interference-free silica blank.
- There are many commonly known inter-element interferences, such as iron (Fe) on chromium (Cr), titanium (Ti) on barium (Ba), and lead (Pb) on arsenic (As). Please contact your Olympus representative for more information.
- Analysis time is 120 seconds per beam condition.
- Only the common elements are listed, other elements are possible.
- Additional information regarding gold (Au) analysis:
 - Gold naturally forms clumps or 'nuggets' and is not evenly distributed in the sample. Reported values will be high compared to lab assay when a nugget is in the X-ray beam and low if the nugget is missed.
 - Gold has multiple inter-element interferences including arsenic (As), zinc (Zn), tungsten (W) and selenium (Se). Therefore, gold (Au) results might be either over-reported (false-positives) or under-reported (not detected). The use of pathfinder elements is recommended for gold exploration.

Vanta VMR model GeoChem LOD	
Element	LOD (ppm)
Mg	2500
Al	350
Si	200
P	40
S	45
K	20
Ca	15
Ti	25
V	30
Cr	10
Mn	5
Fe	5
Ni	4
Cu	2
Zn	1
Zr	1
Mo	1
Ag	2
Cd	3
Sn	2
Sb	5
W	1
Au	2
Pb	2
As	1
Se	1
Rb	1
Sr	1
Y	1
Hg	1
Nb	2
Bi	2
Th	2
U	1