

## Rare Earth Element and Trace Elements Using ICP-MS

A lithium borate fusion of the sample prior to acid dissolution and ICP-MS analysis provides the most quantitative analysis for a broad suite of elements. This technique solubilizes most mineral species, including those that are highly refractory.

ANALYTES (ppm)								CODE
Ba	0.5-10,000	Gd	0.05-1,000	Rb	0.2-10,000	Tm	0.01-1,000	ME-MS81
Ce	0.5-10,000	Hf	0.2-10,000	Sm	0.03-1,000	U	0.05-1,000	
Co	0.5-10,000	Ho	0.01-1,000	Sn	1-10,000	V	5-10,000	
Cr	10-10,000	La	0.5-10,000	Sr	0.1-10,000	W	1-10,000	
Cs	0.01-10,000	Lu	0.01-1,000	Ta	0.1-2,500	Y	0.5-10,000	
Dy	0.05-1,000	Mo	2-10,000	Tb	0.01-1,000	Yb	0.03-1,000	
Er	0.03-1,000	Nb	0.2-2,500	Th	0.05-1,000	Zr	2-10,000	
Eu	0.03-1,000	Nd	0.1-10,000	Tl	0.5-1,000			
Ga	0.1-1,000	Pr	0.03-1,000					
Combination of Rare Earth & Trace Elements from method ME-MS81 plus whole rock package by method ME-ICP06.								

## Mineralized Rare Earth Samples Using ICP-MS

A lithium borate fusion is used prior to acid dissolution. High sample to volume ratios are utilized in addition to Class A volumetric glassware. Certified high grade rare earth reference materials are part of the standard protocol.

ANALYTES (ppm)								CODE
Ce	3-50000	Nb	1-5000	Rb	1-50000	Tm	1-5000	ME-MS81h
Dy	2-5000	Nd	1-50000	Sm	1-5000	U	1-5000	
Er	1-5000	Pr	1-5000	Sn	5-50000	W	5-50000	
Eu	1-5000	Ho	1-5000	Ta	0.5-5000	Y	3-50000	
Gd	2-5000	La	3-50000	Tb	1-5000	Yb	1-5000	
Hf	1-50000	Lu	1-5000	Th	1-5000	Zr	10-50000	

## Ore Grade Rare Earth Determinations by ICP-AES

High grades of REEs are being encountered in many projects. There is a requirement for better precision and accuracy at these levels than is generally achievable by multiple dilutions and ICP-MS finish.

After a lithium borate fusion and acid dissolution, the sample is taken to volume and analyzed by ICP-AES. Protocols for assay determination are used to ensure suitable precision.

ANALYTES (%)								CODE
Ce	0.01-30	Gd	0.01-30	Nd	0.01-30	Sm	0.01-30	(+) - OGREE
Dy	0.01-30	La	0.01-30	Pr	0.01-30	Tb	0.01-30	