



## ALS Methods ME-MS41L™ ME-MS41W™

### Lowest detection limits in the industry

The method development team at ALS has combined improvements in inductively coupled plasma mass spectrometry (ICP-MS) instrumentation with new sample introduction techniques to achieve dramatic reductions in detection limits of 10-100 times lower than our previous Super Trace method. These detection limit improvements have resulted in higher signal to noise ratios, low carry over effects, and significant reductions in oxide and polyatomic interferences that commonly hamper ultra low detection limits in mineral exploration.

A major source of uncertainty in ICP-MS analysis is the formation of oxides within the plasma.

# Aqua Regia Super Trace Analysis

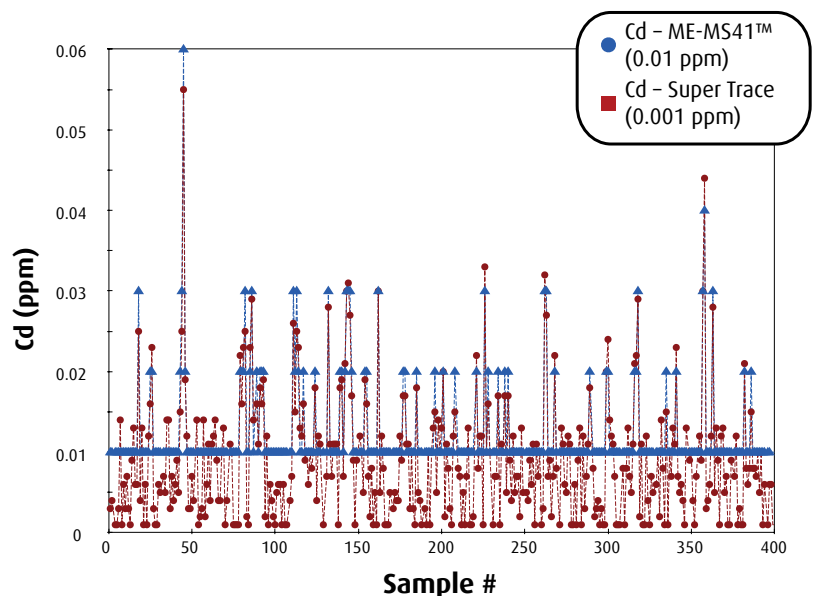
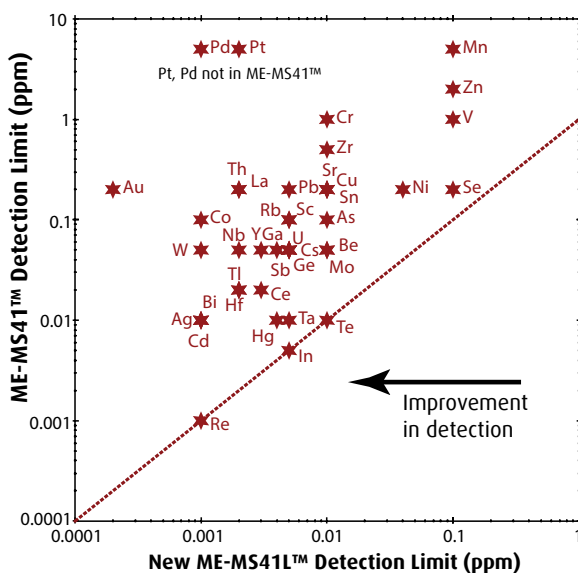
Instrumentation and sample introduction systems providing the lowest detection limits in the industry for aqua regia and weak acid digestions of soil, sediment and rock.

The Super Trace method from ALS results in oxide formation of < 0.5% compared to ~3% achieved with other instrumentation.

The improvements in ICP-MS methodologies that ALS has produced mean that not only are much lower detection limits achieved, but the exploration geochemist also has a much greater degree of confidence in the separation of anomaly from background. The figure below demonstrates the much greater confidence in Cd background values, for example, with improved detection for Cd in the Super Trace aqua regia digestion method.

### Super Trace 53 elements by ICP-MS and ICP-AES

The Super Trace method is available for samples processed using our standard aqua regia digestion (ME-MS41L™) or with our weak acid digestion (ME-MS41W™). Both digestions are available for standard soils and sediments, as well as with our clay separation technique. The Super Trace method has been optimized for long-term ICP-MS signal stability, in particular for samples with very high Ca content.

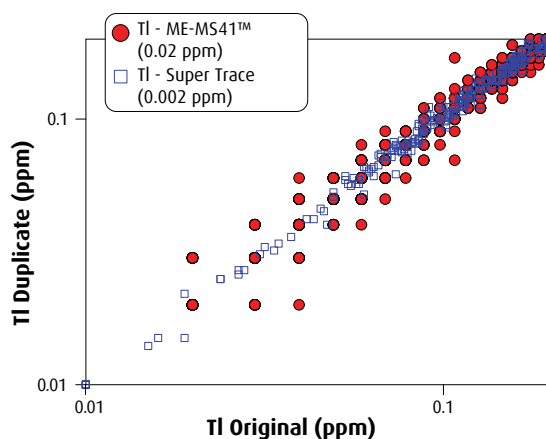




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ME-MS41L™ / ME-MS41W™ ANALYTES & RANGES (ppm)							
Ag	0.001-100	Cu	0.01-10,000	Nb	0.002-500	Ta	0.005-50
Al	0.01%-25%	Fe	0.001%-50%	Ni	0.04-10,000	Te	0.01-500
As	0.01-10,000	Ga	0.004-10,000	P	0.001%-1%	Th	0.002-10,000
Au	0.0002-25	Ge	0.005-500	Pb	0.005-10,000	Ti	0.001%-10%
B	10-10,000	Hf	0.002-500	Pd	0.001-25	Tl	0.002-10,000
Ba	0.5-10,000	Hg	0.004-10,000	Pt	0.002-25	U	0.005-10,000
Be	0.01-1000	In	0.005-500	Rb	0.005-10,000	V	0.1-10,000
Bi	0.001-10,000	K	0.01%-10%	Re	0.001-50	W	0.001-10,000
Ca	0.01%-25%	La	0.002-10,000	S	0.01%-10%	Y	0.003-500
Cd	0.001-1000	Li	0.1-10,000	Sb	0.005-10,000	Zn	0.1-10,000
Ce	0.003-500	Mg	0.01%-25%	Sc	0.005-10,000	Zr	0.01-500
Co	0.001-10,000	Mn	0.1-50,000	Se	0.1-1000		
Cr	0.01-10,000	Mo	0.01-10,000	Sn	0.01-500		
Cs	0.005-500	Na	0.001%-10%	Sr	0.01-10,000		

The significant reductions in detection limits have the effect of dramatically improving the confidence of exploration geochemical data at low concentrations. The adjacent graph illustrates the improved accuracy of low level Tl in sample duplicates.



ALS METHOD CODE	DESCRIPTION
ME-MS41L™	Standard ALS aqua regia digestion, paired with new ICP-MS technologies that provide ultra-trace detection limits on key pathfinder elements. Directly comparable to bulk soils analyzed with the same method.
ME-MS41W™	Weak acid leach using 1:1 ratio of nitric and hydrochloric acids, paired with new ICP-MS technologies that provide ultra-trace detection limits on key pathfinder elements. Designed to minimize background signal and cause geochemical anomalies in weakly-bound ions to stand out.

ALS provides a wide range of specialised testing services covering all stages of your project's life cycle.

Please visit **alsglobal.com** for more information on our services and specialties.

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