

# Suggested list of potential applications

4 March 2022

## (LA)-ICP-MS

no	Analysis type	Perceivable sample type	Outcome	Sample preparation required (Price [USD] per sample)	Price [USD]
1	Water analysis	<ul style="list-style-type: none"> <li>Fresh water</li> <li>Waste water</li> <li>Ground water</li> </ul>	Analytical results in table format for Ag, Al, As, Ba, Be, Ca, Cd, Co, Cr, Cs, Cu, Fe, Ga, K, Li, Mg, Mn, Na, Ni, Pb, Rb, Se, Sr, Tl, U, V, Zn, Ce, Dy, Er, Eu, Gd, Ho, La, Lu, Nd, Pr, Sc, Sm, Tb, Th, Tm, Y, Yb, Sb, Au, Hf, Ir, Pd, Pt, Rh, Ru, Te, Sn, In, Ir, Sc, B, Ge, Mo, Nb, P, Re, S Si, Ta, Ti, W Zr, Fe, K, Ca, Na, Mg; Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Tl, V, Zn, Th,	Dilution	5.00 per element (min 5 elements per sample)
2	Analysis of single mineral grains	Single mineral grains > 100 $\mu\text{m}$	Analytical results in table format for K, Li, Mg, Al, Si, P, S, Ca, Sc, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Sr, Zr, Nb, Ta, W, Th, Ga, As, Y, Mo, Ag, Cd, In, Sn, Sb, Ba, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Hf, Hg, Tl, Bi, Au,	None/ polished section (15.00)	15.00 per grain, min. 10 grains
3a	Training LA- ICP-MS		Basic theory and practical training	NA	1,600.00 per two weeks (10 days) and trainee
3b			Advanced theory and practical training	NA	2,000.00 per two weeks (10 days) and trainee

## SEM

	Analysis type	Perceivable sample type	Outcome	Sample preparation required (Price [USD] per sample)	Price [USD]		
					Low Res.	Medium Res.	High Res.
1	Automatic mineral identification from rocks, ores, concentrates	<ul style="list-style-type: none"> <li>Rock</li> <li>Ore</li> <li>Mineral concentrates of grains &gt; 500 µm embedded in epoxy</li> <li>Maximum sample dimensions [mm] = 50x50x20</li> </ul>	<ul style="list-style-type: none"> <li>Image of artificially coloured mineralogy and related legend comprising:               <ul style="list-style-type: none"> <li>Particles</li> <li>Area</li> <li>Area %</li> <li>Weight %</li> </ul> </li> </ul>	Thin section (15.00)/ Polished section (15.00)	50.00 per sample	65.00 per sample	80.00 per sample
1b	Grain size distribution-Low Resolution		<ul style="list-style-type: none"> <li>Grain size distribution for all grains <b>OR one mineral type</b></li> <li>Graphic documentation of grain size distribution</li> </ul>		+15.00 per sample		
1c	Grain size distribution-High Resolution		<ul style="list-style-type: none"> <li>Grain size distribution for all grains and <b>up to 10 mineral types</b></li> <li>Graphic documentation of grain size distribution</li> </ul>		+25.00 per sample		
1d	Pore Volume Determination		<ul style="list-style-type: none"> <li>Pore volume in %</li> </ul>		+15.00 per sample		

1e	Liberation Grade Determination		<ul style="list-style-type: none"> <li>Extent of intergrown or surrounding minerals to a related commodity</li> </ul>		+15.00 per sample
2	Selective EDX Element Spectra Acquisition	<ul style="list-style-type: none"> <li>Rock</li> <li>Ore</li> <li>Loose mineral concentrates of grains &gt; 500 µm</li> </ul>	<ul style="list-style-type: none"> <li>Element occurrence and mineral identification</li> </ul>	(optional: Thin section (15.00)/ Polished section (15.00))	35.00 basic fee per sample incl. 1 acquisition/identification + 10.00 per each additional acquisition/identification
3	Semi micrographs		<ul style="list-style-type: none"> <li>Images of sections or field of interests (low and high magnification)</li> </ul>		35.00 basic fee per sample incl. 1 image + 8.00 per each additional image
4	Training SEM		<ul style="list-style-type: none"> <li>Basic theory and practical training</li> </ul>	NA	1,600.00 per two weeks and trainee

- A check is always required if standard solutions and purified water for ICP-MS water analysis are available!