

# Schedule of methods

## Geochemistry, exploration and mining

### SAMPLE PREPARATION

Sample preparation package	Method	Description	Sample size
Soil samples	Sieve 1	Dry, sieve to <0,06mm	0.1–1 kg
	Sieve 2	Dry, sieve to other fractions	0.1–1 kg
Rock samples	Man 1	Dry, crush, pulverise entire sample (LM5)*, bag pulp	0.2–3 kg
	Man 2	Dry, crush, riffle split to 100g, bag reject, pulverise*	0.1–3 kg

\*Cleaning of the bowl between every sample included

### PRECIOUS METALS ANALYSIS

Gold	Method Code	Method	Optimal concentration range	Sample size
Geochemical	521U	Aqua regia -GFAAS	0.5–1 000 ppb	5 g
	522U	Aqua regia -GFAAS	0.5–1 000 ppb	20 g
	515PM*	Aqua regia -ICPOES/MS	5–1000 ppb	5 g
	515U*	Aqua regia -GFAAS	0.5–1 000 ppb	5 g
Assay	704P	Fire Assay -ICPOES	0.01–100 ppm	25 g
	705P	Fire Assay -ICPOES	0.005–100 ppm	50 g
Cyanide extractable Au	236A	PAL Cyanidation-FAAS	0.1–10 000 ppm	0.5 kg
High grade assay	704G	Fire Assay -Gravimetry	1–10 000 ppm	25 g
High grade Au and Ag	704P + 704G	Fire Assay -ICPOES+Gravimetry	0.1–10 000 ppm	25 g
Flotation concentrate	740G	Fire Assay-Gravimetry	100–10 000 ppm	Varies
High grade concentrate	741G	Fire Assay-Gravimetry	0.1–50 %	Varies
Screen Fire Assay	Screen through 100µm, Fire Assay-FAAS total oversize and duplicate undersize			0.5 kg
"Total gold"	PAL Cyanidation-FAAS, wash/neutralize/Fire Assay-FAAS tailing			0.5 kg

Silver	Method Code	Method	Optimal concentration range	Sample size
Geochemical	511PM*	Aqua regia -ICPOES/MS	0.01–100 ppm	0.2 g
	515PM*	Aqua regia -ICPOES/MS	0.01–100 ppm	5 g
Low grade assay	510P*	Aqua regia -ICPOES	1–200 ppm	0.2 g
Cyanide extractable Ag	236A	PAL Cyanidation-FAAS	0.1–10 000 ppm	0.5 kg
High grade assay	704G	Fire Assay -Gravimetry	1–10 000 ppm	25 g
Flotation concentrate	740G	Fire Assay -Gravimetry	100–10 000 ppm	Varies
High grade concentrate	741G	Fire Assay -Gravimetry	0.1–50 %	Varies

Gold/Palladium/Platinum	Method Code	Method	Optimal concentration range Au/Pd/Pt	Sample size
Geochemical	521U	Aqua regia -GFAAS	0.5/1/5–1 000 ppb	5 g
	522U	Aqua regia -GFAAS	0.5/1/5–1 000 ppb	20 g
	515PM*	Aqua regia -ICPOES/MS	5/20/2–1 000 ppb	5 g
	515U*	Aqua regia -GFAAS	0.5/1/5–1 000 ppb	5 g
Assay	704P	Fire Assay -ICPOES	0.01/0.01/0.01–100 ppm	25 g
	705P	Fire Assay -ICPOES	0.005/0.005/0.005–100 ppm	50 g

\*Included in a multi-element package

## MULTI-ELEMENT PACKAGES

Element	DETECTION LIMIT									
	Geochemical						Assay			
	175X ppm	307PM ppm	306PM ppm	511P ppm	511PM ppm	515PM ppm	510P ppm	720P %	514P %	240P ppm
Ag		5	0,2	1	0,01	0,01	1		1ppm	
Al	100	100	50	20	20	15		0,01		
As	20	0,5	2	5	0,05	0,05	10	0,01	0,05 %	
Au						5ppb				
B			10	5	5	5				
Ba	30	2	2	1	1	1		0,002		
Be		0,5	0,5	0,2	0,05	0,2		0,001		
Bi	30	0,1	1	*20	0,01	0,005	*			
Ca	30	100	50	50	50	50		0,01		
Cd	*30	0,1	0,1	1	0,01	0,01	1		1ppm	
Ce	30	0,5	0,2		0,02					
Co		0,2	2	1	1	0,1	1	0,001	0,01 %	10
Cl	60									
Cr	20	4	2	1	1	1	1	0,003		
Cu	20	2	2	1	1	1	1	0,002	0,01 %	10
F	*2000									
Fe	100	100	50	50	50	50	50	0,01		*200
Ga	30									
Hf		0,5	0,5							
Hg				*2						
In					0,02					
K	30	200	100	100	100	100		0,05		
La	30	5	0,5	1	1	1		0,002		
Li		5	2	1	1	1		0,001		
Mg	200	50	50	50	50	10		0,02		
Mn	60	5	2	1	1	1	1	0,001		
Mo	10	0,5	2	1	0,01	0,01	2	0,005		
Na	500	100	50	50	50	50				
Nb	10	0,2								
Ni	20	4	2	2	1	1	3	0,005	0,01 %	10
P	60	100	50	50	50	50		0,5		
Pb	30	1	10	5	0,02	0,01	10	0,01	0,01 %	
Pt						2ppb				
Rb	10	0,2	2	*2						
REEs		add-on	add-on							
S	60	100	50	20	20	20	20	0,02	0,01 %	*100
Sb	100	0,1	0,2	20	0,03	0,01	20	0,01		
Sc	30	2	1	0,5	0,5	0,5		0,002		
Se					0,05	0,01	*			
Si	100							0,1		
Sn	20	2	2		0,01					
Sr	10	2	1	0,5	0,5	0,5		0,003		
Ta	*30	0,5	0,5							
Tb		0,1	0,01							
Te				*10	0,006	0,002	*			
Th	30	0,1	0,1	10	0,05	0,01	*			
Ti	30	5	2	1	1	1		0,01		
Tl		0,1				0,02				
U	10	0,2	0,1	*10	0,05	0,01	*			
V	30	0,5	2	1	1	1		0,005		
W			2	*5	0,05	0,05	*			
Y	10	2	0,2	0,5	0,5	0,5		0,001		
Yb		0,1	0,01		0,02					
Zn	20	5	2	1	1	1	1	0,005	0,01 %	
Zr	10	5	2	*1	1	1				
Elements	35	42	42	31	41	38	14	27	9	3

\*Additional elements that can be included

## ADDITIONAL METHODS

	Method code	Method
Fast EDXRF-analysis	Tailored	Loose powder-EDXRF. 1-5 elements.
Physical properties	830G	Pulp-Specific gravity-Pycnometer
	891G	Pulp-Saturation magnetisation-Satmagan
Individual assays	810L	S-analysis-Combustion IR
	811L	C-analysis-Combustion IR
	822L	Hg-analysis
	813G	Loss on ignition (LOI)

175 X	<b>Petrological analysis.</b> Pressed powder pellet. XRF analysis.
307PM	<b>Petrological analysis.</b> Multi acid digestion. All REE. ICP-OES and ICP-MS analysis.
306PM	<b>Geochemical analysis.</b> 4-Acid digestion. All REE. ICP-OES and ICP-MS analysis.
511P	<b>Routine package for geochemical samples.</b> Aqua regia digestion. ICP-OES analysis.
511PM	<b>Extended package for ultratrace level geochemical samples.</b> Aqua regia digestion. ICP-OES and ICP-MS analysis.
515PM	<b>Extended package particularly suited for geochemical prospecting of Au.</b> Aqua regia digestion. ICP-OES and ICP-MS analysis.
510P	<b>Ores with moderate grades.</b> Aqua regia digestion. ICP-OES analysis.
720P	<b>Refractory, high grade ores and concentrates.</b> Na-peroxide fusion. ICP-OES analysis.
514P	<b>Assay of base metals.</b> Aqua regia digestion. ICP-OES analysis.
240P	<b>Sulphide selective leach.</b> Ammonium Citrate-H <sub>2</sub> O <sub>2</sub> -leach. ICP-OES analysis.

Labtium Oy is a FINAS-accredited testing laboratory To25 meeting the requirements of standard SFS-EN ISO/IEC 17025:2005.

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