

LAB	CODE	METHOD	INSTRUMENT	ELEMENTS																	
ACME Labs	1T	4 Acid digestion Ultratrace ICP-MS analysis - Multi Acid (MA250)	Ultratrace ICP/MS	Major	wt% detection limit (%)	Fe 0.02	Ca 0.02	P 0.001	Mg 0.02	Ti 0.001	Al 0.02	Na 0.002	K 0.02	S 0.04							
				Trace	ppm detection limit (ppm)	Sc 0.1	Be 0	V 1	Cr 1	Co 0.2	Ni 0.1	Cu 0.02	Zn 0.2	Ga 0.02	As 0.2	Rb 0.1	Sr 1	Y 0.1	Zr 0.2		
						Nb 0.04	Mo 0.05	Sn 0.1	Sb 0.02	Cs 0.1	Ba 1	La 0.1	Ce 0.02	Pr 0.1	Nd 0.1	Sm 0.1	Eu 0.1	Gd 0.1	Tb 0.1		
		ppb detection limit (ppb)	Dy 0.1	Ho 0.1	Er 0.1	Tm 0.1	Yb 0.1	Lu 0.1	Hf 0.02	Ta 0.1	W 0.1	Pb 0.02	Bi 0.04	Th 0.1	U 0.1	Au 0.1					
			Cd 0.02	Li 0.1	Mn 2																
			Ag 20																		
1F	Ultratrace Aqua Regia Digestion	ICP/ES & ICP/MS	Major	wt% detection limit (%)	Fe 0.01	Ca 0.01	P 0.001	Mg 0.01	Ti 0.001	Al 0.01	Na 0.001	K 0.01	S 0.02								
			Trace	ppm detection limit (ppm)	Sc 0.1	V 2	Cr 0.5	Co 0.1	Ni 0.1	Cu 0.01	Zn 0.1	Ga 0.1	As 0.1	Sr 0.5	Mo 0.01	Sb 0.02	Ba 0.5	La 0.5			
					W 0.1	Tl 0.02	Pb 0.01	Bi 0.02	Th 0.1	U 0.1	Cd 0.01	B 20	Mn 1	Se 0.1	Te 0.02						
	ppb detection limit (ppb)	Ag 2	Au 0.2	Hg 5																	
1D	Aqua Regia Digestion	ICP/MS	Major	wt% detection limit (%)	Fe 0.01	Ca 0.01	P 0.001	Mg 0.01	Ti 0.001	Al 0.01	Na 0.001	K 0.01	S 0.05								
			Trace	ppm detection limit (ppm)	Sc 0.1	V 2	Cr 1	Co 0.1	Ni 0.1	Cu 0.1	Zn 1	Ga 1	As 0.5	Sr 1	Mo 0.1	Ag 0.1	Sb 0.1	Ba 1			
					La 1	W 0.1	Tl 0.1	Pb 0.1	Bi 0.1	Th 0.1	U 0.1	Mn 1	Cd 0.1	B 20	Se 0.5	Hg 0.01					
	ppb detection limit (ppb)	Au 0.5																			
ACTLABS	4B	Major Elements Fusion / SC	Fusion ICP	Major Oxides	wt% detection limit (%)	SiO ₂ 0.01	Al ₂ O ₃ 0.01	Fe ₂ O ₃ 0.01	MnO 0.001	MgO 0.01	CaO 0.01	Na ₂ O 0.01	K ₂ O 0.01	TiO ₂ 0.001	P ₂ O ₅ 0.01	LOI 0.01	TOTAL 0.01				
				Trace	ppm detection limit (ppm)	Ba 2	Be 1	Sc 1	Sr 1	V 5	Y 1	Zr 2									
	4B2	Lithium Metaborate/Tetraborate Fusion	ICP/MS	Trace	ppm detection limit (ppm)	V 5	Cr 20	Co 1	Ni 20	Cu 10	Zn 30	Ga 1	Ge 0.5	As 5	Rb 1	Sr 2	Y 0.5	Zr 1	Nb 0.2		
						Mo 2	Ag 0.5	In 0.1	Sn 1	Sb 0.2	Cs 0.1	Ba 3	La 0.05	Ce 0.05	Pr 0.01	Nd 0.05	Sm 0.01	Eu 0.005	Gd 0.01		
						Tb 0.01	Dy 0.01	Ho 0.01	Er 0.01	Tm 0.005	Yb 0.01	Lu 0.002	Hf 0.1	Ta 0.01	W 0.5	Tl 0.05	Pb 5	Bi 0.1	Th 0.05		
						U 0.01															
								As 0.5	Br 0.5	Cr 5	Ir 5	Sb 0.2	Sc 0.1	Se 3							
	4B3	Instrumental Neutron Activation Analysis	INAA	Trace	ppm detection limit (ppm)	Au 2															
	4C	XRF Fusion (Whole Rock Analysis)	XRF	Major Oxides	wt% detection limit (%)	SiO ₂ 0.01	Al ₂ O ₃ 0.01	Fe ₂ O ₃ 0.01	MnO 0.001	MgO 0.01	CaO 0.01	Na ₂ O 0.01	K ₂ O 0.01	TiO ₂ 0.01	P ₂ O ₅ 0.01	LOI 0.01	TOTAL 0.01				
	4F	FeO - Titration	Titration	FeO	wt% detection limit (%)	FeO 0.1															
4L	Lithium Metaborate/Tetraborate Fusion	ICP and ICP/MS	Major	wt% detection limit (%) method	SiO ₂ 0.01	Al ₂ O ₃ 0.01	Fe ₂ O ₃ 0.01	MnO 0.001	MgO 0.01	CaO 0.01	Na ₂ O 0.01	K ₂ O 0.01	TiO ₂ 0.001	P ₂ O ₅ 0.01	LOI 0.01	TOTAL 0.01	LOI2 0.01	TOTAL2 0.01			
					ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	
					Sc 1	Be 1	V 5	Cr 20	Co 1	Ni 20	Cu 10	Zn 30	Ga 1	Ge 0.5	As 5	Rb 1	Sr 2	Y 0.5			
					ICP	ICP	ICP	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS
					Zr 1	Nb 0.2	Mo 2	Ag 0.5	In 0.1	Sn 1	Sb 0.2	Cs 0.1	Ba 3	La 0.05	Ce 0.05	Pr 0.01	Nd 0.05	Sm 0.01			
					ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS
Eu 0.005	Gd 0.01	Tb 0.01	Dy 0.01	Ho 0.01	Er 0.01	Tm 0.005	Yb 0.01	Lu 0.002	Hf 0.1	Ta 0.01	W 0.5	Tl 0.05	Pb 5								
ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS	ICP/MS					
		Bi 0.1	Th 0.05	U 0.01																	
		ICP/MS	ICP/MS	ICP/MS																	
5B	Instrumental Neutron Activation Analysis - Improved	INAA	Trace	ppm detection limit (ppm)	Sc 0.1																

LAB	CODE	METHOD	INSTRUMENT	ELEMENTS																			
				Major Oxides	wt% detection range (%)	SiO ₂ 0.01-100	Al ₂ O ₃ 0.01-100	Fe ₂ O ₃ 0.01-100	MnO 0.01-39	MgO 0.01-50	CaO 0.01-60	Na ₂ O 0.01-10	K ₂ O 0.01-15	P ₂ O ₅ 0.01-46	LOI 0.01-100	TOTAL							
ALS Chemex	6A	Major Elements - Lithium Borate Fusion	XRF	Major Oxides	wt% detection range (%)	SiO ₂ 0.01-100	Al ₂ O ₃ 0.01-100	Fe ₂ O ₃ 0.01-100	MnO 0.01-39	MgO 0.01-50	CaO 0.01-60	Na ₂ O 0.01-10	K ₂ O 0.01-15	P ₂ O ₅ 0.01-46	LOI 0.01-100	TOTAL							
	6Fe	Ferrous Iron Content - HF-HCl Acid Digestion	Titration	FeO	wt% detection range (%)	FeO 0.01-100																	
	6B	REE/Trace Element Lithium Borate Fusion	ICP/MS	Trace	ppm detection range (ppm)	Sc	Be	V	Cr	Co	Ni	Cu	Zn	Ga	Ge	As	Rb	Sr	Y				
						Zr_ICPMS 2-10000	Zr_XRF 2-10000	Nb 0.2-2500	Mo 1-10000	Ag 0.5-100	Sn 1-10000	Sb 0.05-250	Cs 0.01-10000	Ba 0.5-10000	La 0.5-10000	Ce 0.5-10000	Pr 0.03-1000	Nd 0.1-10000	Sm 0.03-1000				
						Eu 0.03-1000	Gd 0.05-1000	Tb 0.01-1000	Dy 0.05-1000	Ho 0.01-1000	Er 0.03-1000	Tm 0.01-1000	Yb 0.03-1000	Lu 0.01-1000	Hf 0.2-10000	Ta 0.1-2500	W 1-10000	Tl 0.02-250	Pb 2-10000				
Bi 0.01-250						Th 0.05-1000	U 0.05-1000	Cd 0.5	Li 10-10000	B													
ALS Global	ME-XRF26	Fusion	XRF	Major Oxides	wt% detection range (%)	Al ₂ O ₃ 0.01	BaO 0.01	CaO 0.01	Cr ₂ O ₃ 0.01	Fe ₂ O ₃ 0.01	K ₂ O 0.01	MgO 0.01	MnO 0.01	Na ₂ O 0.01	P ₂ O ₅ 0.01	SiO ₂ 0.01	SrO 0.01	TiO ₂ 0.01	Total 0.01				
	OA-GRA05x	LOI for XRF at 500°C	WST-SEQ	LOI	wt% detection range (%)	LOI 1000 0.01																	
	C-IR07 S-IR08	LECO Total C and S	LECO combustion analysis (IR Spectroscopy)	C/S	wt% detection range (%)	C %	S %																
	ME-MS81	REE/Trace Element Lithium Borate Fusion	ICP/MS	Trace	ppm detection limit (ppm)	Ba	Ce	Cr	Cs	Dy	Er	Eu	Ga	Gd	Ge	Hf	Ho	La	Lu				
						0.5	0.1	10	0.01	0.05	0.03	0.03	0.1	0.05	5	0.2	0.01	0.1	0.01				
						Nb	Nd	Pr	Rb	Sm	Sn	Sr	Ta	Tb	Th	Tm	U	V	W				
	0.2	0.1	0.03	0.2	0.03	1	0.1	0.1	0.01	0.05	0.01	0.05	5	1									
Y	Yb	Zr																					
0.1	0.03	2																					
ME-MS42	Aqua Regia Digestion	ICP-MS	Trace	ppm detection limit (ppm)	As	Bi	Hg	In	Re	Sb	Sc	Se	Te	Tl									
0.1	0.01	0.005	0.005	0.001	0.05	0.1	0.2	0.01	0.02														
ME-4ACD81	Four acid digestion	ICP-AES	Metals	ppm detection limit (ppm)	Ag	Cd	Co	Cu	Li	Mo	Ni	Pb	Sc	Zn									
0.5	0.5	1	1	10	1	1	2	1	2														
Fe-VOL05	Ferrous Iron Content - HF-HCl Acid Digestion	Titration	FeO	wt% detection range (%)	FeO 0.01																		
Bureau Veritas	LF302	Major Elements - Lithium Borate Fusion	ICP/ES	Major Oxides	wt% detection limit (%)	SiO ₂ 0.01	Al ₂ O ₃ 0.01	Fe ₂ O ₃ 0.04	MgO 0.01	CaO 0.01	Na ₂ O 0.01	K ₂ O 0.01	TiO ₂ 0.01	P ₂ O ₅ 0.01	MnO 0.01	Cr ₂ O ₃ 0.002	LOI -5.1	Sum 0.01					
	LF100	REE/Trace Element Lithium Borate Fusion	ICP/MS	Trace	ppm detection limit (ppm)	Ba	Ni	Sc	Be	Co	Cs	Ga	Hf	Nb	Rb	Sn	Sr	Ta	Th				
						1	20	1	1	0.2	0.1	0.5	0.1	0.1	0.1	1	0.5	0.1	0.2				
						U	V	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy				
	0.1	8	0.5	0.1	0.1	0.1	0.1	0.02	0.3	0.05	0.02	0.05	0.01	0.05									
Ho	Er	Tm	Yb	Lu																			
0.02	0.03	0.01	0.05	0.01																			
TC007	Leco Total C and S; Organic C	LECO combustion analysis (IR Spectroscopy)	C/S	wt% detection limit (%)	TOT/C 0.02	TOT/S 0.02	C/ORG 0.02																
AQ200	Metals by Aqua-Regia Digestion	ICP-ES/MS	Metals	ppm detection limit (ppm)	Mo 0.1	Cu 0.1	Pb 0.1	Zn 1	Ni 0.1	As 0.5	Cd 0.1	Sb 0.1	Bi 0.1	Ag 0.1	Au 0.5	Hg 0.01	Tl 0.1	Se 0.5					

Notes for ACTLABS Code 4L Major analyses:

LOI2 is LOI adjusted for the difference in oxygen between FeO and Fe₂O₃

TOTAL2 is TOTAL including LOI2