



Geochem, XRF & XRD Testing Services

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Independent.
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SGS PAKISTAN PRIVATE LIMITED

SGS

Minerals Sample Preparation Area:

SGS Minerals has state of the art geochemical sample preparation area is a dedicated facility designed to process exploration samples for analysis, ensuring accurate and reliable results for geochemical exploration and research. This area is structured to handle a wide range of sample types, including rocks, soils, sediments, and drill cores, with strict adherence to quality and contamination control standards.





Suite No.01 (Analysis would be performed at SGS Karachi Lab)

Sr. No.	PARAMETERS	TESTING LIMITS	TESTING METHODS
1	Silver (Ag)	0.2-1000 ppm	Aqua Regia digestion, final finish AAS
2	Gold (Au)	0.02-200ppm	Roasting, Aqua Regia Digestion, DIBK Extraction final finished on AAS
3	Arsenic (As)	5-2000 ppm	Two acid + H2O2 digestion, final finish ICP-OES
4	Iron (Fe)	0.005-15%	Four acid digestion, final finish ICP-OES
5	Sulphur (S)	0.005-5%	
6	Aluminum (Al)	0.01% -5%	
7	Barium (Ba)	10-2000 ppm	
8	Beryllium (Be)	5-1,000 ppm	
9	Bismuth (Bi)	5-1000 ppm	
10	Calcium (Ca)	0.01-10%	
11	Cadmium (Cd)	5-1000 ppm	
12	Cesium (Cs)	5-1000 ppm	
13	Cobalt (Co)	5-2000 ppm	
14	Chromium (Cr)	5-1000 ppm	
15	Copper (Cu)	1-150,000 ppm	
16	Gallium (Ga)	5-1,000 ppm	
17	Hafnium (Hf)	5-1,000 ppm	
18	Indium (In)	5-1,000 ppm	
19	Potassium (K)	0.01-10%	
20	Lithium (Li)	10-10,000 ppm	
21	Magnesium (Mg)	0.01-50%	
22	Manganese (Mn)	5-100,000 ppm	
23	Molybdenum (Mo)	1-10,000 ppm	
24	Sodium (Na)	0.01-10%	
25	Niobium (Nb)	5-1,000 ppm	
26	Nickel (Ni)	1-10,000 ppm	
27	Phosphorus (P)	10-10,000 ppm	
28	Lead (Pb)	2-10,000 ppm	
29	Rubidium (Rb)	1-10,000 ppm	
30	Antimony (Sb)	5-2000 ppm	
31	Selenium (Se)	5-1,000 ppm	
32	Tin (Sn)	5-1,000 ppm	
33	Strontium (Sr)	5-2000 ppm	
34	Tantalum (Ta)	5-1,000 ppm	
35	Thorium (Th)	5-1,000 ppm	
36	Titanium (Ti)	0.01-10%	
37	Thallium (Tl)	20-10,000 ppm	
38	Uranium (U)	5-1,000 ppm	
39	Vanadium(V)	1-10,000 ppm	
40	Tungsten (W)	10-10,000 ppm	
41	Zinc (Zn)	2-10,000 ppm	
42	Zirconium (Zr)	5-1,000 ppm	

Suite No.02 (XRF - Analysis would be performed at SGS Karachi Lab)

Sr	PARAMETERS	Sr	PARAMETERS	RANGE (ppm)	DESCRIPTION
01	Magnesium (Mg)	21	Yttrium (Y)	5 ppm	Note: - XRF able to detect above mention 39 elements if present in the rock sample. - Results obtained from XRF machine is for reference purpose only and could not be considered for any negotiation. - For further details and accuracy, chemical wet analysis is recommended. Elements having atomic number ≤ 11 are not detected by XRF, if these elements present in sample can be give as LE%
02	Aluminium (Al)	22	Zirconium (Zr)		
03	Silicon (Si)	23	Niobium (Nb)		
04	Phosphorus (P)	24	Molybdenum (Mo)		
05	Sulphur (S)	25	Silver (Ag)		
06	Chlorine (Cl)	26	Cadmium (Cd)		
07	Calcium (Ca)	27	Tin (Sn)		
08	Titanium (Ti)	28	Antimony (Sb)		
09	Vanadium (V)	29	Barium (Ba)		
10	Chromium (Cr)	30	Lanthanum (La)		
11	Manganese (Mn)	31	Cerium (Ce)		
12	Iron (Fe)	32	Praseodymium (Pr)		
13	Cobalt (Co)	33	Neodymium (Nd)		
14	Nickel (Ni)	34	Tungsten (W)		
15	Copper (Cu)	35	Mercury (Hg)		
16	Zinc (Zn)	36	Lead (Pb)		
17	Arsenic (As)	37	Bismuth (Bi)		
18	Selenium (Se)	38	Thorium (Th)		
19	Rubidium (Rb)	39	Light elements		
20	Strontium (Sr)	--	--		

Note: This testing method give information about elements present in rock sample.

Suite No. 03 (XRD Analysis would be performed at SGS Subcontracting Karachi Lab)

Sr. #	DESCRIPTION	RANGE %	METHOD
01	X-ray Diffraction (XRD)	Minerals > 3% can be detected by XRD	XRD Instrumental

Note: This testing method give details of mineralogy present in rock.





Suite No. 04 (PGM Group-Analysis would performed at SGS Overseas Affiliated Lab)

S. No.	PARAMETERS	LOWER LIMITS	METHOD
01	Gold (Au)	0.02 g/t	Fire Assay, Nickel Sulphide collection, ICP-OES Finish
01	Platinum (Pt)	0.02 g/t	
02	Palladium (Pd)	0.02 g/t	
03	Rhodium (Rh)	0.02 g/t	
04	Ruthenium (Ru)	0.02 g/t	
05	Iridium (Ir)	0.13g/t	

Suite No. 05 (REE- Analysis would be performed at SGS Overseas Affiliated Lab)

Sr No.	PARAMETERS	LOWER LIMITS	METHOD
01	Ce	3 ppm	Sodium Peroxide Fusion / ICP-MS Package (16 Elements) GC IMS93A
02	Dy	0.5 ppm	
03	Er	0.5 ppm	
04	Eu	0.3 ppm	
05	Gd	0.5 ppm	
06	Ho	0.3 ppm	
07	La	3 ppm	
08	Lu	0.5 ppm	
09	Nd	5 ppm	
10	Pr	0.5 ppm	
11	Sm	0.5 ppm	
12	Tb	0.5 ppm	
13	Th	0.5 ppm	
14	Tm	0.3 ppm	
15	U	0.5 ppm	
16	Yb	0.5 ppm	

Suit No. 06 (Analysis would be subcontracted, performed at SGS Overseas Affiliated Lab):

GE ICP40Q12 & GE IMS40Q12 FOUR ACID DIGESTION / COMBINED ICP-OES-MS PACKAGE					
ELEMENTS AND LIMITS					
Ag	0.02-100 ppm	K	0.01-15%	Sn	0.2-1,000 ppm
Al	0.01-15 %	La	0.05-10,000 ppm	Sr	0.5-10,000 ppm
As	1-10,000 ppm	Li	0.2-10,000 ppm	Ta	0.05-10,000 ppm
Ba	1-10,000 ppm	Lu	0.01-1,000 ppm	Tb	0.05-10,000 ppm
Be	0.05-2,500 ppm	Mg	0.002-15%	Te	0.05-1,000 ppm
Bi	0.01-10,000 ppm	Mn	2-10,000 ppm	Th	0.01-10,000 ppm
Ca	0.005-15%	Mo	0.05-10,000 ppm	Ti	0.001-15%
Cd	0.02-10,000 ppm	Na	0.005-15%	Tl	0.02-10,000 ppm
Ce	0.05-1,000 ppm	Nb	0.1-1000 ppm	U	0.05-10,000 ppm
Cs	0.05-1,000 ppm	Ni	1-10,000 ppm	V	2-10,000 ppm
Co	0.1-10,000 ppm	P	0.001-15%	W	0.1-10,000 ppm
Cr	1-10,000 ppm	Pb	0.5-10,000 ppm	Y	0.1-10,000 ppm
Cu	0.5-10,000 ppm	Rb	0.1-10,000 ppm	Yb	0.1-1000 ppm
Fe	0.01-15%	S	0.005-5%	Zn	1-10,000 ppm
Ga	0.05-1000 ppm	Sb	0.05-10,000 ppm	Zr	0.5-1,000 ppm
Hf	0.02-500 ppm	Sc	0.1-10,000 ppm	-	---
In	0.005-500 ppm	Se	1-1000 ppm	-	---

Suite No. 07

PARAMETER	RANGE (ppm)	METHOD
Au	0.01-100ppm	Fire Assay, AAS (GO_FAA30V10)

Contact us

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SGS Natural Resources

WHEN YOU NEED TO BE SURE

