

Laboratory **Chemical Laboratory, Geological Survey of India (Government of India), Eastern Region Head Quarter, Bhu-Bijnan Bhavan, Block-DK6, Sector-2, Salt Lake, Kolkata, West Bengal**

Accreditation Standard **ISO/IEC 17025: 2005**

Certificate Number **TC-5956**

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Validity **22.06.2018 to 21.06.2020**

Last Amended on -

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
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**CHEMICAL TESTING**

I.	SOIL AND ROCK			
1.	Soil and Stream Sediment	Be	GSI/CL/ER/SOP/01A Date of issue(Rev) 11.12.2015 (ICPMS Method)	0.6 mg/kg to 30 mg/kg
		Ge		0.35 mg/kg to 3.6 mg/kg
		Sn		1 mg/kg to 440 mg/kg
		La		13 mg/kg to 180 mg/kg
		Ce		33 mg/kg to 430 mg/kg
		Pr		2.8 mg/kg to 63 mg/kg
		Nd		10 mg/kg to 230 mg/kg
		Sm		2.2 mg/kg to 21 mg/kg
		Eu		0.42 mg/kg to 3.7 mg/kg
		Gd		1.9 mg/kg to 13 mg/kg
		Tb		0.3 mg/kg to 2.1 mg/kg
		Dy		1.9 mg/kg to 11 mg/kg
		Ho		0.35 mg/kg to 3 mg/kg
		Er		1.1 mg/kg to 8.6 mg/kg
		Tm		0.17 mg/kg to 1.72 mg/kg
		Yb		0.9 mg/kg to 13 mg/kg
		Lu		0.15 mg/kg to 1.9 mg/kg
		Hf		1.4 mg/kg to 22 mg/kg
		Ta		0.5 mg/kg to 16.3 mg/kg
		U		0.9 mg/kg to 20 mg/kg
		SiO <sub>2</sub>	GSI/CL/ER/SOP/02A Issue Date (Rev) 07.04.2016 (XRF Method)	32 % to 89 %
		Al <sub>2</sub> O <sub>3</sub>		2.8 % to 30 %
		TiO <sub>2</sub>		0.12 % to 3.4 %
		Fe <sub>2</sub> O <sub>3</sub>		1.9 % to 19 %
		MnO		0.03 % to 1.3 %
		CaO		0.16 % to 8.27 %
		MgO		0.12 % to 3.71 %
Na <sub>2</sub> O	0.04 % to 3.4 %			

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		K <sub>2</sub> O		0.12 % to 5.2 %
		P <sub>2</sub> O <sub>5</sub>	GSI/CL/ER/SOP/02A	0.03 % to 0.38 %
		Ba	Issue Date:01.10.2015	50 mg/kg to 2000 mg/kg
		Co	(XRF Method)	2 mg/kg to 97 mg/kg
		Cr		15 mg/kg to 4300 mg/kg
		Cu		5 mg/kg to 1230 mg/kg
		Ga		7 mg/kg to 33 mg/kg
		Nb		7 mg/kg to 95 mg/kg
		Ni		2 mg/kg to 276 mg/kg
		Pb		5 mg/kg to 2700 mg/kg
		Rb		5 mg/kg to 470 mg/kg
		Sc		6 mg/kg to 28 mg/kg
		Sr		25 mg/kg to 480 mg/kg
		Th		6 mg/kg to 70 mg/kg
		V		20 mg/kg to 250 mg/kg
		Y		7 mg/kg to 42 mg/kg
		Zn		10 mg/kg to 3800 mg/kg
		Zr		8 mg/kg to 500 mg/kg
2.	Rock	Be	GSI/CL/ER/SOP/01B	0.5 mg/kg to 3.75 mg/kg
		Ge	Date of Issue(Rev)	0.9 mg/kg to 1.33 mg/kg
		Sn	06.02.2018	0.17 mg/kg to 3.51 mg/kg
		La	(ICPMS Method)	1.2 mg/kg to 122 mg/kg
		Ce		0.84 mg/kg to 277 mg/kg
		Pr		0.48 mg/kg to 6.2 mg/kg
		Nd		1.46 mg/kg to 137 mg/kg
		Sm		0.019 mg/kg to 30.2 mg/kg
		Eu		0.1 mg/kg to 7.6 mg/kg
		Gd		0.27 mg/kg to 8.01 mg/kg
		Tb		0.076 mg/kg to 4.8 mg/kg
		Dy		0.37 mg/kg to 10.5 mg/kg
		Ho		0.11 mg/kg to 5.8 mg/kg
		Er		0.30 mg/kg to 14.6 mg/kg
		Tm		0.053 mg/kg to 2.1 mg/kg

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		Yb		0.022 mg/kg to 13.8 mg/kg
		Lu		0.076 mg/kg to 2.1 mg/kg
		Hf		0.19 mg/kg to 5.14 mg/kg
		Ta		0.13 mg/kg to 2.29 mg/kg
		SiO <sub>2</sub>	GSI/CL/ER/SOP/02B	38.20 % to 75.65 %
		Al <sub>2</sub> O <sub>3</sub>	Issue Date (Rev)	0.62 % to 29.8 %
		TiO <sub>2</sub>	07.04.2016	0.01 % to 2.61 %
		Fe <sub>2</sub> O <sub>3</sub>	(XRF Method)	0.47 % to 15.16 %
		MnO		0.04 % to 0.32 %
		CaO		0.34 % to 15.9 %
		MgO		0.03 % to 44.72 %
		Na <sub>2</sub> O		0.02 % to 8.90 %
		K <sub>2</sub> O		0.003 % to 4.76 %
		P <sub>2</sub> O <sub>5</sub>		0.01 % to 1.39 %
		Ba		50 mg/kg to 1400 mg/kg
		Co		6 mg/kg to 116 mg/kg
		Cr		15 mg/kg to 24000 mg/kg
		Cu		6 mg/kg to 227 mg/kg
		Ga		7 mg/kg to 59 mg/kg
		Nb		7 mg/kg to 267 mg/kg
		Ni		6 mg/kg to 2460 mg/kg
		Pb		5 mg/kg to 133 mg/kg
		Rb		8 mg/kg to 3600 mg/kg
		Sc		7 mg/kg to 36 mg/kg
		Sr		8 mg/kg to 1370 mg/kg
		Th		20 mg/kg to 1000 mg/kg
		V		20 mg/kg to 650 mg/kg
		Y		10 mg/kg to 718 mg/kg
		Zn		20 mg/kg to 244 mg/kg
		Zr		10 mg/kg to 1280 mg/kg