



जवाहरलाल नेहरू एल्युमीनियम अनुसंधान विकास एवं अभिकल्प केन्द्र नागपुर

JNARDDC

JAWAHARLAL NEHRU ALUMINIUM RESEARCH DEVELOPMENT & DESIGN CENTRE, NAGPUR

Autonomous Body, Ministry of Mines, Govt. of India



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An ISO/IEC-17025:2017 & ISO-17034:2016 NABL accredited lab

Ref.No: 585/JNARDDC/TESTING/24-25

Date : Oct 24, 2024

Mr. Ashutosh Temle
General Manager (Mines)
Madhya Pradesh State Mining Corporation Limited
Bhopal

Sub: Chemical Analysis of 05 Limestone Samples.

Ref: Your Letter No. क्रमांक: पूर्वक्षण/न.क्र. 124/452-453 दिनांक २२/०८/२०२४
Your Samples Received On Dated 07.10.2024
Your E-mail message dated 23.08.2024
Our Letter No.421/JNARDDC/TESTING/24-25 dated 27.08.2024.
Our letter No. 544/JNARDDC/TESTING/24-25 Dated 14.10.2024

Dear Sir,

We refer to above. We are enclosing Chemicals Analysis Report for the above samples. Kindly acknowledge the receipt.

Kindly note that the sample received from you were given our own code number and then analyzed. Hence the enclosed analysis report carries the JNARDDC sample code number. The customer identification numbers and their corresponding JNARDDC samples code number are given below for your interpretation.

Sl No.	Customer Sample ID	JNARDDC Sample Code No. <u>Chemical Analysis</u>
1	M00020	JNA/24-25/Oct/60
2	M00040	JNA/24-25/Oct/61
3	M00062	JNA/24-25/Oct/62
4	M00082	JNA/24-25/Oct/63
5	M00106	JNA/24-25/Oct/64

Thanking You.

Yours faithfully,

(N.N. Warhadpande)
Incharge (CTSC)

Encl: Analysis Report



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DEVELOPMENT & DESIGN CENTRE (JNARDDC),
NAGPUR**

Page 1 of 2

Test Report

Name of the Laboratory	Chemical Laboratory,	Address of the Laboratory		Analytical Division, JNARDDC,
	JNARDDC			Amravati road, Wadi, Nagpur
Receipt Date of Sample	08/10/2024	Test Report No.	JNARDDC/ANAL/24-25/281	
Condition of the Sample	OK	Report Date	22/10/2024	
Name of the Item Tested	05 Limestone Samples (JNA/24-25/OCT/60 to 64)			
Date of Analysis	11/10/2024 - 22/10/2024	Env. Condition	Temp.	21.6 °C
		During Analysis	R.Humidity	45 %
Equipment Used for Testing	XRF, ICP-OES, ICP-MS, Flamephotometer	Test Procedure		JNARDDC/QTP/XRF
		Method Used		JNARDDC/QTP/ICP JNARDDC/QTP/ICP-MS JNARDDC/QTP/FPM

S.No.	Test Parameters	SAMPLE ID					Test Procedure
		JNA/24-25 /OCT/60	JNA/24-25 /OCT/61	JNA/24-25 /OCT/62	JNA/24-25 /OCT/63	JNA/24-25 /OCT/64	
1	Mg (%)	5.88	6.74	6.81	7.68	7.21	JNARDDC/QTP/XRF
2	Li (mg/kg)	84.06	104.2	86.03	92.64	62.20	JNARDDC/QTP/FPM
3	Ba (mg/kg)	94.03	93.45	117.2	86.45	110.3	JNARDDC/QTP/ICP
4	Zr (mg/kg)	30.53	21.61	20.85	23.69	18.44	JNARDDC/QTP/ICP
5	Ga (mg/kg)	4.09	5.30	5.62	6.12	2.84	JNARDDC/QTP/ICP-MS
6	Be (mg/kg)	0.80	1.06	1.04	1.17	0.66	JNARDDC/QTP/ICP-MS
7	Ge (mg/kg)	1.15	1.34	1.50	1.58	1.05	JNARDDC/QTP/ICP-MS
8	Mo (mg/kg)	1.74	1.53	1.44	1.46	1.36	JNARDDC/QTP/ICP-MS
9	Sn (mg/kg)	1.85	5.27	2.89	3.32	3.55	JNARDDC/QTP/ICP-MS
10	Rb (mg/kg)	23.60	28.94	29.60	32.37	13.17	JNARDDC/QTP/ICP-MS
11	Hf (mg/kg)	0.43	1.05	0.52	0.50	0.86	JNARDDC/QTP/ICP-MS
12	Ta (mg/kg)	8.37	11.80	11.71	37.58	44.75	JNARDDC/QTP/ICP-MS
13	Nb (mg/kg)	1.31	16.43	1.92	1.76	7.48	JNARDDC/QTP/ICP-MS
14	U (mg/kg)	21.48	23.87	27.99	30.22	19.50	JNARDDC/QTP/ICP-MS
15	Th (mg/kg)	30.88	49.09	48.96	51.28	28.94	JNARDDC/QTP/ICP-MS
16	W (mg/kg)	3.92	6.76	3.22	2.96	1.92	JNARDDC/QTP/ICP-MS
17	Ni (mg/kg)	31.66	17.53	18.41	19.55	50.68	JNARDDC/QTP/ICP-MS
18	V (mg/kg)	20.88	26.97	29.07	31.08	15.50	JNARDDC/QTP/ICP-MS
19	Sc (mg/kg)	3.13	4.07	4.24	4.52	2.14	JNARDDC/QTP/ICP-MS
20	Y (mg/kg)	33.18	35.18	41.35	38.14	26.72	JNARDDC/QTP/ICP-MS
21	La (mg/kg)	27.82	29.78	33.78	34.24	18.75	JNARDDC/QTP/ICP-MS
22	Ce (mg/kg)	47.21	50.40	57.67	60.15	30.30	JNARDDC/QTP/ICP-MS
23	Pr (mg/kg)	6.34	6.73	8.47	7.96	4.08	JNARDDC/QTP/ICP-MS
24	Nd (mg/kg)	3.70	3.85	4.43	4.59	2.43	JNARDDC/QTP/ICP-MS

Contd....



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Page 2 of 2

Test Report

S.No.	Test Parameters	SAMPLE ID					Test Procedure
		JNA/24-25 /OCT/60	JNA/24-25 /OCT/61	JNA/24-25 /OCT/62	JNA/24-25 /OCT/63	JNA/24-25 /OCT/64	
25	Sm (mg/kg)	1.10	1.18	1.34	1.40	0.73	JNARDDC/QTP/ICP-MS
26	Eu (mg/kg)	0.23	0.24	0.27	0.27	0.16	JNARDDC/QTP/ICP-MS
27	Gd (mg/kg)	1.21	1.21	1.50	1.43	0.79	JNARDDC/QTP/ICP-MS
28	Tb (mg/kg)	2.71	2.91	3.22	3.30	1.88	JNARDDC/QTP/ICP-MS
29	Dy (mg/kg)	1.01	1.08	1.19	1.22	0.69	JNARDDC/QTP/ICP-MS
30	Ho (mg/kg)	3.52	3.84	4.26	4.21	2.48	JNARDDC/QTP/ICP-MS
31	Er (mg/kg)	0.65	0.73	0.80	0.79	0.48	JNARDDC/QTP/ICP-MS
32	Tm (mg/kg)	3.48	3.60	3.71	3.78	2.72	JNARDDC/QTP/ICP-MS
33	Yb (mg/kg)	0.59	0.65	0.71	0.72	0.54	JNARDDC/QTP/ICP-MS
34	Lu (mg/kg)	0.57	0.63	0.68	0.69	0.42	JNARDDC/QTP/ICP-MS

Signature		
Name	Sandeep Kowe / A S Gijare / D R Meshram	Dr Upendra Singh
Designation	Sci Asst-II / Sci Asst-IV / Sci Asst-IV	Sr Principal Scientist & HoD
Authority	Tested by	Reviewed & Approved by

NOTE :

1. Sample is tested on as received basis & Laboratory is not involved in sampling.
2. Limits/Standard values are given only for interpretation of results and may not represent acceptability/rejection of material.
3. This test report refers only to particular item(s) submitted for Testing
4. This test report shall not be reproduced, except in full, unless written permission for the publication of an approved abstract has been obtained from JNARDDC
5. The test results reported in this report are valid at the time and under the stated conditions of test
6. All disputes are subject to Nagpur Jurisdiction

- End Report -