

## BAUXITE (CRM) BARC B1201



**Price:-** Rs 25000/- per 90 gms bottle

### Payment Modality:

1. Demand draft of Rs 12,500/- made in favour of “Accounts Officer, BARC” payable at Mumbai is to be sent by post to:  
To,  
Head,  
NCCCM, BARC, Govt. of India,  
PO: ECIL, Hyderabad, Telangana- 500062.
2. Rs 14750/- (Rs 12,500 + 18% GST) is to be paid online in advance through e-Transfer to National Aluminium Company, Bhubaneswar as per the following bank details:

State Bank of India

A/C No: 10044880013

IFSC: SBIN0009817

Branch: NALCO Corporate Office Branch. Bhubaneswar



National Centre for Compositional Characterization of Materials (NCCCM),

Bhabha Atomic Research Center (BARC), Hyderabad, India

National Aluminium Company Limited (NALCO) Bhubaneswar, India



## प्रमाणित निर्देशक द्रव्य

### Certified Reference Material Major and Minor Constituents in Bauxite Reference Material Certificate

## BARC B1201

Certified Reference Material (CRM) of bauxite for major and minor constituents ( $\text{Al}_2\text{O}_3$ ,  $\text{Fe}_2\text{O}_3$ ,  $\text{SiO}_2$ ,  $\text{TiO}_2$ ,  $\text{Cr}_2\text{O}_3$ ,  $\text{MgO}$ ,  $\text{MnO}$ ,  $\text{V}_2\text{O}_5$  and LOI) is intended for use as a calibration standard in evaluating analytical methods and the performance of instruments for the determination of analytes. This CRM can also be used for data quality control (DQC) in the routine analysis of bauxite. One bottle of this CRM contains 90g of the powdered bauxite material in a polypropylene bottle.

The bauxite powder material for major and minor constituents has been certified by the consensus of a network of laboratories by means of an inter laboratory comparison exercise (ILCE) as given in table below. Analytical techniques used for the determination of major and minor constituents in bauxite by the participant laboratories include inductively coupled plasma atomic emission spectrometry (ICP-AES), Titrimetry, XRF, Gravimetry and Thermogravimetry analysis (TGA). This bauxite certified reference material (CRM) was produced in accordance with the ISO GUIDE 34: 2016 and ISO IEC 17025:2017. Assigned property values were established according to ISO Guide 35:2017 guidelines. The results are referred to the dry material (1g) corrected for moisture at 105°C for 2 h.

Analyte	Certified Values <sup>1</sup> Mass Fraction(% m/m)	Expanded uncertainty <sup>2</sup> (% m/m)
$\text{Al}_2\text{O}_3$	41.3	0.5
$\text{Fe}_2\text{O}_3$	29.3	0.5
$\text{SiO}_2$	4.12	0.23
$\text{TiO}_2$	2.33	0.05
$\text{Cr}_2\text{O}_3$	0.044	0.003
$\text{MnO}$	0.057	0.005
$\text{MgO}$	0.027	0.003
$\text{V}_2\text{O}_5$	0.070	0.003
LOI @ 1000°C	22.3	0.2

The given uncertainty of the certified value is at a confidence level 95% (Coverage factor  $k = 2$ ).

<sup>1</sup> ISO 13528 (2015): Statistical methods for use in proficiency testing by inter-laboratory comparison,

<sup>2</sup> ISO 35: 2017 guidelines.

### Additional information

The following four property values (mean and standard deviation) are indicative derived from the homogeneity test of the material from ten bottles.

Property values	Unit	Mass fraction $\pm$ SD	Analytical method
$\text{Ga}_2\text{O}_3$	% m/m	$0.0094 \pm 0.0005$	ICP-MS
ZnO	% m/m	$0.008 \pm 0.001$	ICP-MS
CaO	% m/m	$0.009 \pm 0.001$	ICP-AES
Extractable Alumina <sup>1</sup>	% m/m	$34.2 \pm 0.04$	Titrimetry

<sup>1</sup> amount of alumina that is digested in a caustic solution (alumina to caustic ratio~ 0.9) @145°C following conditions of Bayer Process.

**Expiration of Certification:** Valid till 29th February 2032.