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Indian Standard

SPECIFICATION FOR BAUXITE FOR USE IN THE PRODUCTION OF ALUMINA FOR THE ALUMINIUM INDUSTRY

(First Revision)

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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

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Indian Standard

SPECIFICATION FOR BAUXITE FOR USE IN THE PRODUCTION OF ALUMINA FOR THE ALUMINIUM INDUSTRY

(First Revision)

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Indian Standard

SPECIFICATION FOR BAUXITE FOR USE IN THE PRODUCTION OF ALUMINA FOR THE ALUMINIUM INDUSTRY

(First Revision)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 30 May 1985, after the draft finalized by the Ores and Raw Material Sectional Committee had been approved by the Structural and Metals Division Council.

0.2 This standard first published in 1971. In view of the discovery of extensive deposits of high grade gibbsitic bauxite in the East Coast provinces encompassing the states of Orissa and Andhra Pradesh and national importance of the Indian aluminium industry, it was considered desirable to revise this standard adopted in 1971.

0.2.1 Bauxite covered by this standard is either a trihydrate aluminium oxide (gibbsitic) like East Coast deposit or a mixture of trihydrate and monohydrate (boehmitic) like deposits of Bihar, MP and other states. The second category of bauxite is being used presently for production of alumina by Bayer's process in India.

0.3 In this specification requirements of bauxite are based on the chemical and minerological composition of the ore. Since the use of bauxite for the production of alumina used in production of aluminium depends on the economics of the operation, this standard does not preclude the use of bauxite, other than those specified.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Rules for rounding off numerical values (*revised*).

1. SCOPE

1.1 This standard covers the classification of bauxites used in the production of alumina by the Bayer's process and its subsequent use in the production of primary aluminium metal.

2. SUPPLY OF MATERIAL

2.1 General requirements relating to the supply of bauxite shall be as laid down in IS : 1387-1967*.

3. CHEMICAL COMPOSITION

3.1 The chemical composition of bauxites, when determined on dry basis either by the method specified in IS : 2000-1962† or any other established instrumental/chemical method shall be as given in Table 1. In case of dispute the procedure in the latest addition of IS : 2000 for chemical analysis shall be the 'Reference Method'.

TABLE 1 CLASSIFICATION OF BAUXITE

CONSTITUENT	PERCENT BY WEIGHT	
	Grade I (Essentially gibbsitic) or trihydrate	Grade II* (Mixture of gibbsite and boehmite plus diaspore) or trihydrate and monohydrate
Total Al_2O_3, *Min*	40	47
Total available Alumina (TAA), *Min*	36	43
Total SiO_2, *Max*,	4	4
Module, *Min* (Al_2O_3/SiO_2)	12	12
$Fe_2O_3 + TiO_2$, *Max*	30	30
P_2O_5, *Max*	0·20	0·20
V_2O_5, *Max*	0·20	0·20
Loss on Ignition at 1 100°C, *Min*	20	20

*Normally 1 to 2 percent diaspore and 5 to 7 percent boehmite.

3.1.1 The test sample shall be dried at 110 ± 2°C.

4. SAMPLING

4.1 Representative samples of bauxite shall be drawn according to the scheme of sampling given in IS : 1999-1962‡.

*General requirements for the supply of metallurgical materials (*first revision*).
†Methods of chemical analysis of bauxite.
‡Method of sampling bauxite.

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INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	Unit	Symbol
Length	metre	m
Mass	kilogram	k
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	Unit	Symbol
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	Unit	Symbol	Definition
Force	newton	N	1 N = 1 kg.m/s^2
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s (s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m^2

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