

HINDALCO CHEMICALS
FOR
Refractory



Everything in alumina....

HINDALCO

An industry leader in aluminium and copper, Hindalco Industries Limited, the metals flagship company of the Aditya Birla Group is the world's largest aluminium rolling company and one of the biggest producers of primary aluminium in Asia. Its copper smelter is amongst the largest single location custom smelter globally.

Hindalco operates 51 units in 13 countries and includes a workforce of 34,000 representing 15 different nationalities. Hindalco's consolidated turnover was around USD 17 Billion in FY15.

Hindalco has units across India in 10 locations while Hindalco Novelis has 25 manufacturing facilities across 9 countries in 4 continents. The company's production sites are spread across Asia, Europe, North and South America.



Belgaum Operations

HINDALCO CHEMICALS BUSINESS

Hindalco produces metallurgical alumina, chemical grade aluminas and hydrates. These chemical grade aluminas and hydrates are products of the technological innovations of our R&D team, Hindalco Innovation Centre - Alumina. It is recognized by the Department of Scientific & Industrial Research (DSIR), Government of India. Our chemicals serve a wide range of customers around the world with a wide spectrum of grades, suitable for diverse applications, like high grade refractories, ceramics, fire retardant plastics, alum, zeolite and many more. Today, our customised, tailor-made products serve variety of customers in 37 countries across the world.

With an installed capacity of 380,000 TPA, we have the potential of catering to the specific demands of our customers.

In order to further enhance its global reach and supplement its present product portfolio, Hindalco has also started a chemical grade alumina plant in Brazil at Ouro Preto with a capacity of 145,000 TPA.

REFRACTORY :

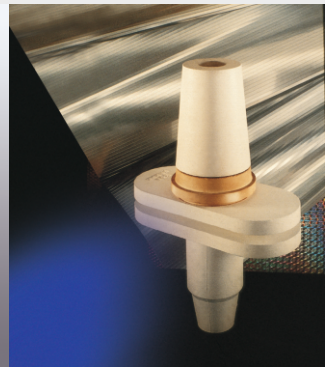
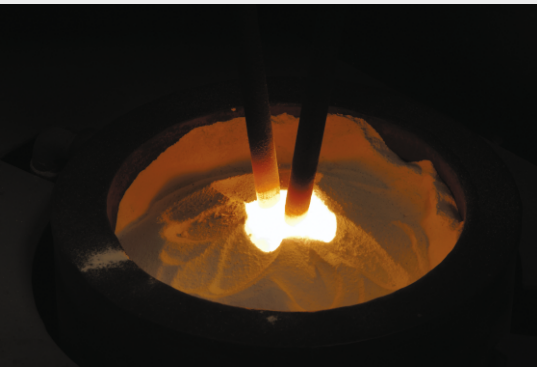
Refractories are used by the various industries in the internal linings of furnaces, kilns, reactors etc. These equipments operate under high temperature and high pressure.

Category : These can be categorized under following heads

1. Refractory Aggregates - WFA, Spinel and Sintered alumina
2. Shaped Refractory-Bricks and Continuous Cast Refractories
3. Monolithics- Castables, Mortars

Role and Advantages of Alumina in Refractories :

- a. Alumina is one of the most chemically stable oxides
- b. Refractoriness increases with increase in alumina percentage
- c. High resistance in oxidizing and reducing atmosphere
- d. Excellent hardness, strength and spalling resistance.



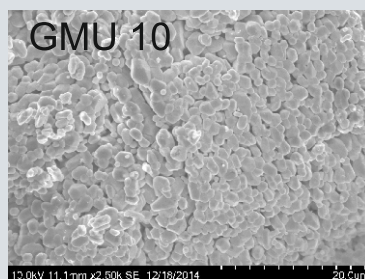
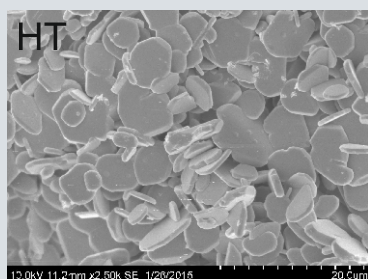
APPLICATIONS

1. **Coarse Aluminas** : Hindalco offers various coarse aluminas for production of refractory aggregates. These are high calcined aluminas produced through controlled calcination in specialized kilns.

Chemical Properties	Unit	HT	GMU10	FG50	A12H
Na ₂ O	%	0.35	0.08	0.35	0.3
SiO ₂	%	0.02	0.06	0.02	0.02
Fe ₂ O ₃	%	0.02	0.02	0.02	0.02
Physical Properties					
SSA	m ² /gm	0.7	1	1	4
+200 mesh	%	45	45		
+325 mesh	%	85	85		80
d50 (malvern)	µm			50	



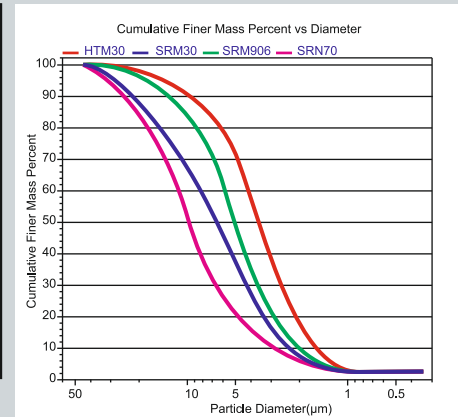
* Typical Values



2. **Fine Aluminas** : Fine alumina act as filler for proper packing of aggregates and improving physio-mechanical properties of refractories. These aluminas have consistent particle size distribution and controlled top cut.

Chemical Properties	Unit	HTM30	SRM30	SRN70	SRM906
Na ₂ O	%	0.35	0.4	0.4	0.4
SiO ₂	%	0.02	0.02	0.02	0.02
Fe ₂ O ₃	%	0.02	0.02	0.02	0.02
Physical Properties					
SSA	m ² /gm	0.8	1.2	1	1
d50 (sedigraph 5120)	μm	4	5	7	5.5
Special Control					
d90/d10					>6

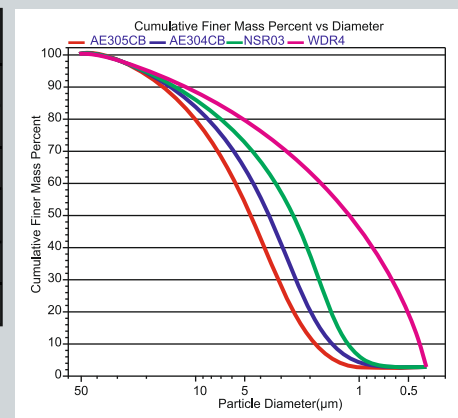
* Typical Values



3. **Milled Aluminas** : Milled Aluminas have wide particle size distribution which improve packing efficiency. These aluminas have low water absorption and better rheological properties.

Chemical Properties	Unit	NSR03	WDR4	AE304CB	AE305CB
Na ₂ O	%	0.35	0.35	0.25	0.25
SiO ₂	%	0.02	0.02	0.02	0.02
Fe ₂ O ₃	%	0.02	0.02	0.02	0.02
Physical Properties					
SSA	m ² /gm	1.2	6	1.2	1.2
d50 (sedigraph 5120)	μm	3	1	3.5	4.2

* Typical Values

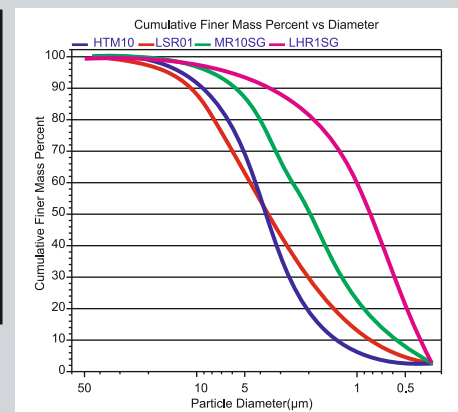


4. **Low Soda Fine Aluminas** : Hindalco offers various low soda aluminas for high end castables like ULCC and NCC. These aluminas have low alkali content, which improves the high temperature mechanical properties.

Chemical Properties	Unit	HTM10	LSR01	LHR1SG #	MR10SG#
Na ₂ O	%	0.1	0.1	0.06	0.08
SiO ₂	%	0.02	0.02	0.08	0.08
Fe ₂ O ₃	%	0.02	0.02	0.03	0.03
Physical Properties					
SSA	m ² /gm	0.8	1.2	6.5	2.0
d50 (sedigraph 5120)	μm	4	3	0.7	1.8

* Typical Values

Reactive Aluminas



Hindalco Innovation Centre-Alumina (HIC-A)



HIC-A is recognised by the Department of Scientific & Industrial Research (DSIR), Government of India. With over 25 years of experience, the Research & Development Team of expert scientists carry out research in the field of bauxite, processibility studies of the Bayer Process, product development, quality control and application research for enhanced understanding of the end-usage of speciality chemicals.

Application support Partners in Progress

State-of-the-art Lab equipment at HIC-A includes :

- Scanning Electron Microscope for studying crystal shape and structure
- Sedigraph Particle Size Analyser
- X-Ray Fluorescence for elemental analysis
- X-Ray Diffraction for analysing phases in alumina
- Surface Area Analyser
- Infrastructure for carrying out application engineering studies and new product development.



Quality Control Certification



Customised Aluminas to achieve your mission of

- Conserving Energy
- Reducing Contamination
- Improving Lives

Disclaimer : All data is based upon Hindalco standard test methods, All data listed are reference values and subjected to production tolerance. These values are applicable to the product description and no guarantee is placed on the properties. It is the responsibility of the users to test the suitability of our products in their application. Hindalco test methods can be shared on request.

Customer Service with...

Customised Products

Customised Packing

Wide distribution network

On Time In Full (OTIF) delivery

Application Support



Our Global Reach



For more details, contact :

HINDALCO INDUSTRIES LIMITED

Ahura Centre, B-Wing, 1st Floor, 82 Mahakali Caves Road, Andheri (East), Mumbai-400 093, India

Tel.: +91-22 6691 7000 Fax : +91-22 6691 7001

Email: t.kumar@adityabirla.com

www.hindalco.com

Brazil Contacts : Av. Américo Renne Gianetti. s/n, Ouro Preto, MG, Brazil

Contact : +55 31 3559 9339 / +55 31 9675 0031

Email: vishal.s@adityabirla.com