



HINDALCO CHEMICALS POLISHING ALUMINAS



Performance Materials

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 44 units (including Mines) in 11 countries and includes a workforce of 34,000 representing 15 different nationalities. Hindalco's consolidated turnover was around USD 18 Billion in FY18.

Hindalco has units across India in 21 locations. Hindalco Novelis' 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 36 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.

POLISHING ALUMINA :

Calcined Alumina, a highly abrasive material is widely used in the polishing industry because

1. The characteristics of Alumina can be customized to suit the polishing application.
2. Alumina being inert, its properties do not change under pressure and temperature which it experiences during the polishing process.

Calcined Alumina is usually mixed with binders and emulsions to prepare compound which is used to Polish metals, plastics, stones, glass surfaces and jewellery.

Polishing is a two stage process which converts a rough surface into a smooth glossy one with mirror finish.

The two stages are :-

● Stock Removal/ Cutting:

Stock Removal is the initial stages of polishing in which an uneven surface is leveled by removing the material. Cutting application requires special high Calcined Alumina for material removal and smoothing of Surface. These high calcined Alumina grades are, predominantly in alpha phase with controlled crystal size and purity levels, to give desired hardness and grain size. Alumina does not react chemically with the surface to be polished.

● Polishing:

In the final stage of polishing, surface of the substrate is smoothed to get glossy mirror finish. Final polishing application requires low calcined soft Alumina with fine particle size to churn out a uniform surface without scratching.

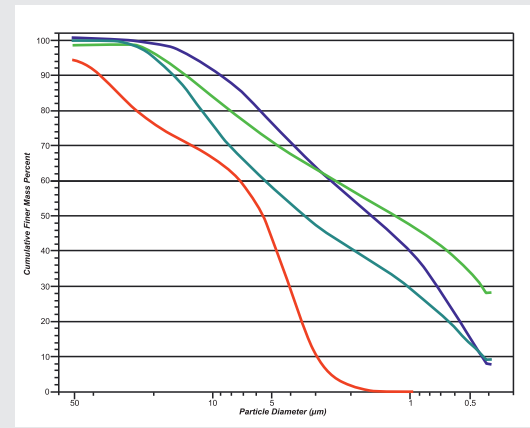


Application	Alumina - Degree of calcinations		
	Low	Medium	High
Stainless Steel	★	★	★
Chrome plating	★		
Brass	★	★	
Non ferrous metal	★	★	
Precious Metal	★		
Granite/ Marble	★		
Plastics/Rubber	★		
Wood	★		
Glass	★		
Automotive polishes	★		
Effect	Polish	Polish/Cut	Cut

Hindalco's long experience in manufacturing specialty Calcined Alumina enables it to perfect customized variations required in the process of manufacturing full range of polishing Aluminas, soft calcined for polishing to extremely hard calcined for stock removal . Coarse Alumina obtained after calcinations are ground to the required particle size to meet specific requirements. Different grinding methods (fluid energy mills and Ball Mills) are available with Hindalco to obtain the desired particle size distribution in polishing Alumina.

The properties of Hindalco's polishing Alumina are outlined in the attached table. Alumina are arranged in the decreasing order of cut effect or increasing order of polish effect. High cut Alumina (hard calcined) will have low polish effect.

Cumulative Particle Size Distribution



■ SRN70 ■ PG15 ■ PGG153F ■ PG70

Polishing Alumina

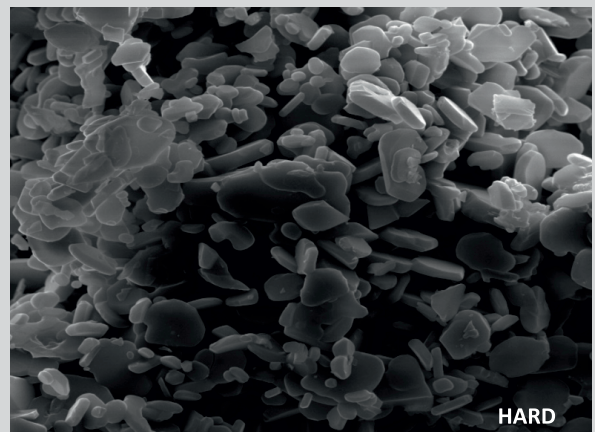
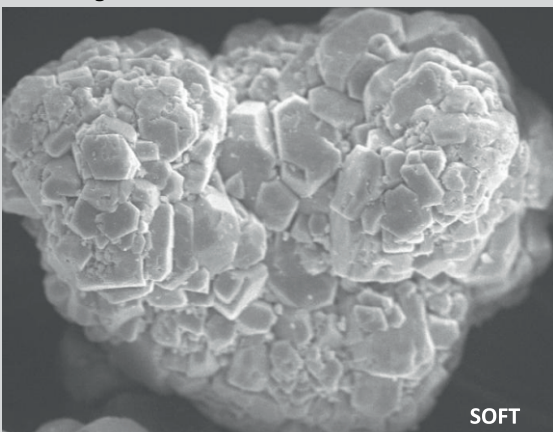
Properties	Unit	STOCK REMOVAL			POLISH					
		SRN70	HI	BM45	PG04U	PG15	PG04	PG70	PGG153	PGG153F
Degree of Calcination		High			Low					
LOI	%	0.25	0.15	0.25	0.5	0.5	0.4	0.5	0.4	0.4
Al2O3*	%	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6	99.6
Na2O (Max)	%	0.35	0.35	0.35	0.40	0.40	0.40	0.40	0.35	0.35
SiO2 (Max)	%	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Fe2O3 (Max)	%	0.016	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
SSA	m2/g	1.2	0.7	1.20	7	13	6	7	10	10
D50**	Micron	5-8		4.5		6	1.5	1.5	3.5	2.5
+45 µm***	%	20-40	85	1.5	75-90	1.0				
UCS**	Micron	2-3	2-3	2-3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Oil Absorption	g/100g	18-22				30-35	20-26	20-25	25 - 30	25 - 30
Cut Effect		8		8		5	5	5	3	2
Polish Effect		4		6		7	8	9	9	10
Applications : -		Stainless steel, Brass, Non Ferrous Metal, Chrome Plating			Stainless steel, Chrome Plating, - Brass, Non Ferrous Metal, Granite/Marbles, Precious metals, Plastics/ Rubber, Wood, Glass, Automotive polish					

*Al2O3 measured by LOI free basis by difference

** Measured by Sedigraph 5120

*** Tyler Mesh – Wet sieving

SEM Image



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, processability studies of the Bayer Process, product development, quality control and application research for enhanced understanding of the end-usage of specialty 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

Customer Service with...

Customised Products

Customised Packing

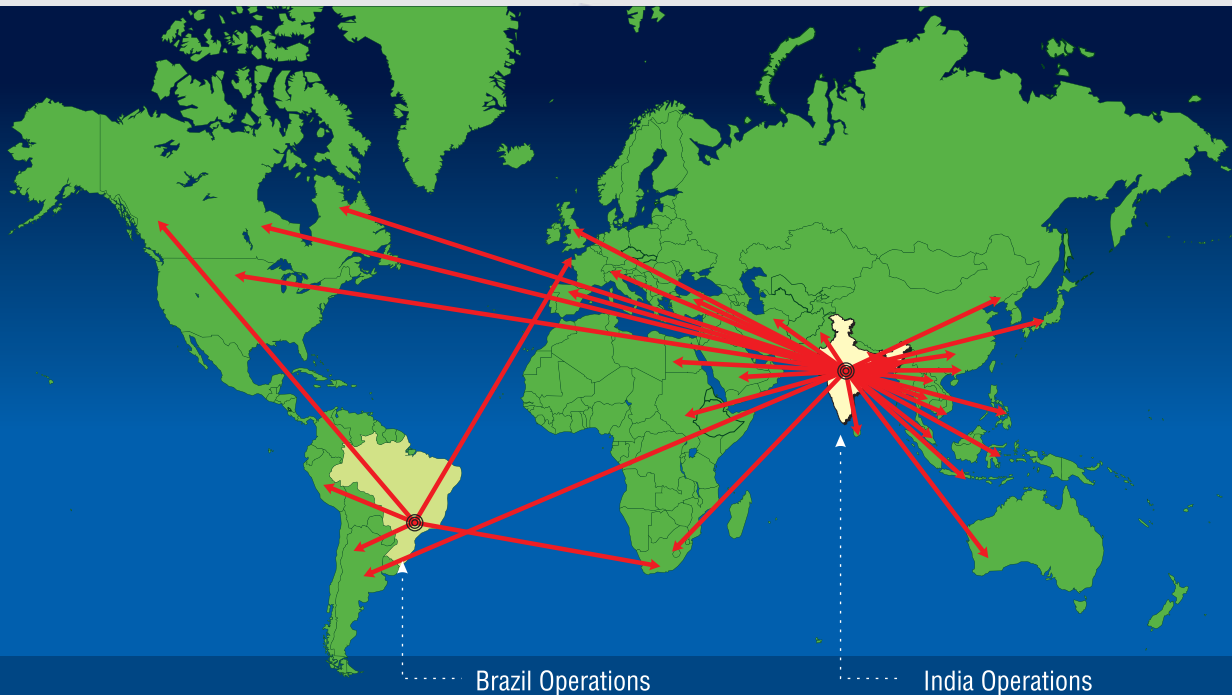
Wide distribution network

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: suman.b@adityabirla.com
Web.: 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