



HINDALCO SPECIALTY
ALUMINA SOLUTIONS

FOR HIGH
PERFORMANCE
REFRACTORIES



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Specialty Alumina business at Hindalco Industries Limited, the metals flagship company of the USD 65 billion Aditya Birla Group, has been serving the Alumina requirements of refractory, ceramics, polishing and many diverse industries for over five decades.

Headquartered in India, the Aditya Birla Group has a diversified business portfolio and presence across 14 industry sectors. Hindalco Industries Limited is the metals flagship company of the group and an industry leader in aluminium, copper, and Specialty Alumina (chemicals) manufacturing. We are a fully integrated Alumina manufacturer with a global presence, operating **47 manufacturing sites across Europe, America, and Asia.**

Our Specialty Alumina business has been serving customised products across the refractory, ceramics, water treatment chemicals, flame retardants and polishing for over five decades. Our R&D facility, Hindalco Innovation Centre for Alumina (HIC-A), is recognised by the Government of India and accredited by the National Accreditation Board for Testing and Calibration Laboratories (NABL). HIC-A has developed a multitude of technologies and products to address a wide range of customer requirements.

Mindful of market dynamics, we have been evolving our supply chain to cater to customer demands, with new warehouses being added in major markets in North America, Europe, and Asia. With **Japan, Europe and the US** expected to play a pivotal role in our next phase of growth, we have **set up regional hubs and sales offices** in these regions to enhance our customer connection.

Pioneering sustainability in the Alumina industry, we have been successful in repurposing all the bauxite residue generated from our Alumina manufacturing operations. Hindalco is the world's first company to achieve 100 percent red mud utilisation across three of its refineries. Consequently, we have been rated as **"The World's Most Sustainable Aluminium company"** consecutively for the last 3 years by the Dow Jones Sustainability Indices.

We believe our commitment to a strong partnership focused on excellence, innovation, and sustainability brings forward novel solutions that re-imagine the world of Alumina. We aim to **make the world Greener, Stronger, Smarter.**



Hindalco Specialty Alumina Solutions for refractories

The processing and calcination parameters along with good control of raw aluminum hydroxide feed have a major impact on final physical properties like Crystal Size, Specific Surface Area, Soda as well as other impurities. With the expertise of Hindalco in specialty alumina and refinery operations as well as being one of the few integrated players with mines-to-market fundamentals, we deliver products with stable and tight controls.

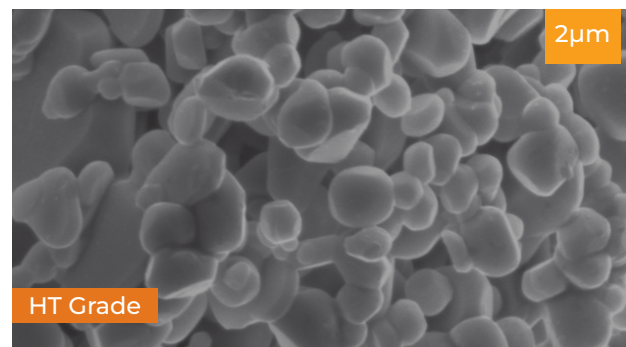
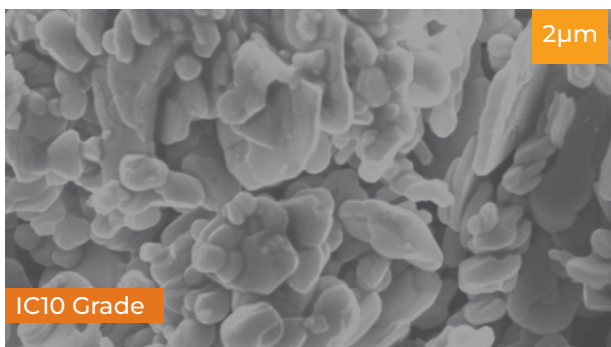




Unground Alumina

The grades of unground alumina, controlled by Specific Surface Area, crystal size, repose angle, purity, degree of calcination and chemistry, are used in various refractory applications such as production of high alumina cement and synthetic aggregates.

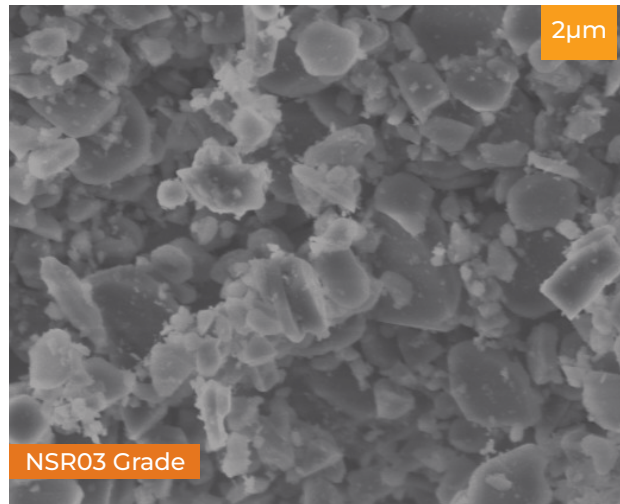
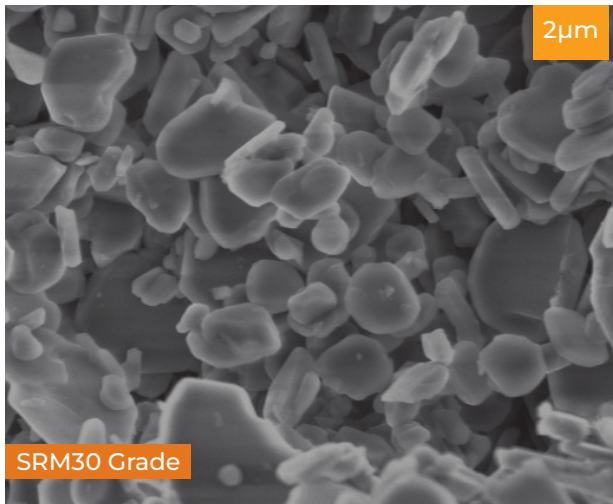
In case of high alumina cement, the final properties such as setting time, phase development and bulk-specific gravity can vary depending on the purity, crystal size and degree of calcination. Whereas, in synthetic aggregates and fusion applications, the similar change in alumina results in lower porosity. Repose angle, degree of calcination, soda content, and controlled fineness are very important for Fused cast refractory applications.



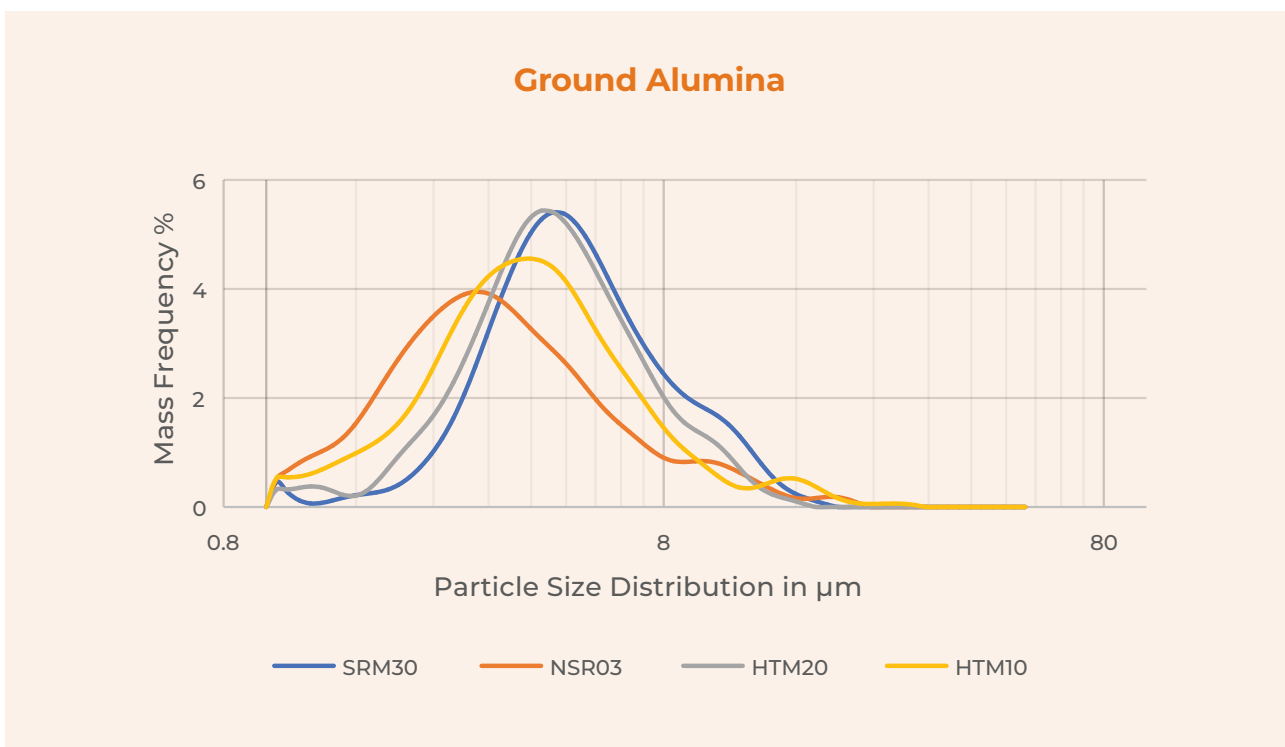
	Parameters	A	SA	HT	IC10	HCA3	HCA4
Chemical Properties	Na ₂ O %	0.27	0.3	0.3	0.05	0.10	0.08
	SiO ₂ %	0.01	0.01	0.02	0.07	0.03	0.03
	Fe ₂ O ₃ %	0.018	0.02	0.02	0.02	0.02	0.02
Physical Properties	SSA (m ² /g)	>75	55	0.8	1.4	0.6	0.5
	+200# (%)	50-65	50-75	50-80	18-60	20-60	20-60
	-325# (%)	0-15	2-15	5-15	15-45	55-90	55-90

Ground Alumina:

Our ground alumina solutions with d50 ranging from 3 to 5 microns and differences in Particle Size Distribution (PSD), chemistry, along with Specific Surface Area are used in both shaped and unshaped products. A high-purity matrix is important for superior results in the application. Depending on the fineness and purity, the ground alumina which ensures proper packing of matrices.



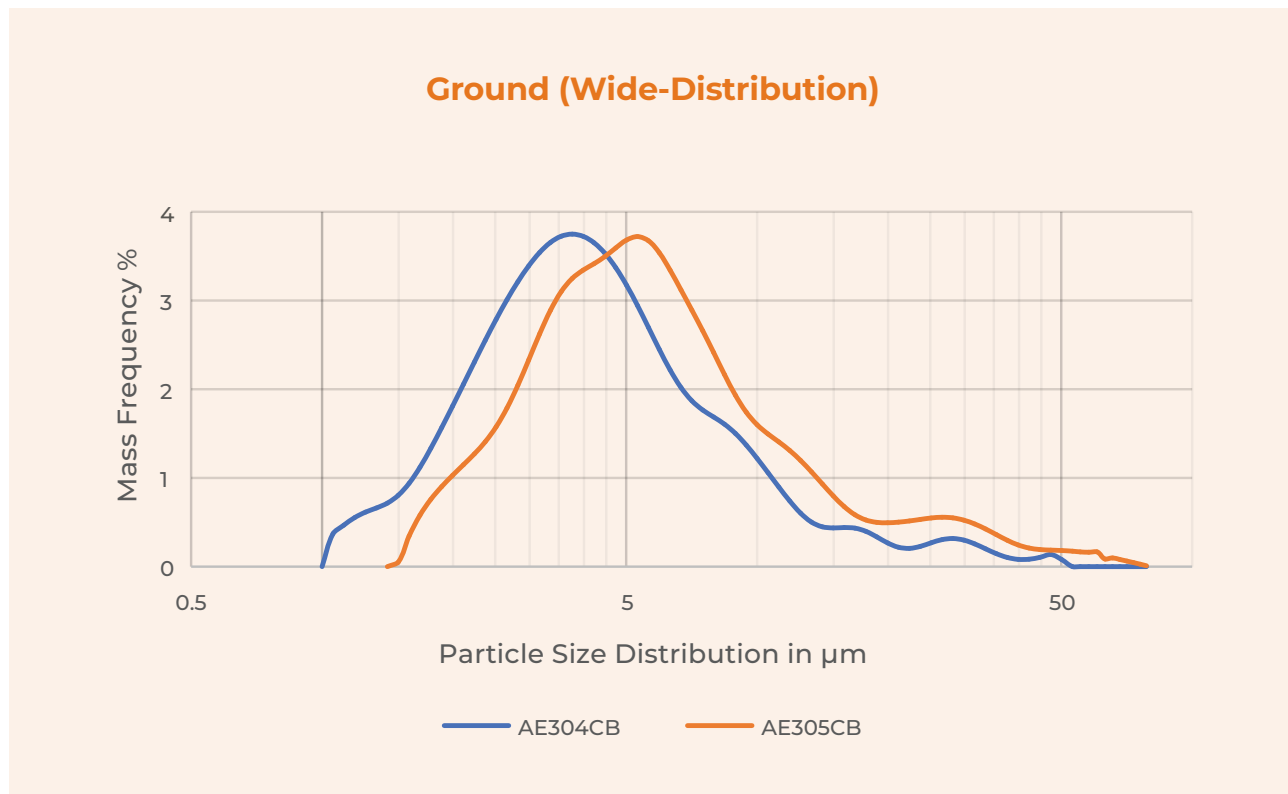
	Parameters	SRM30	SRM30FG	SRM906	NSR03	HTM20	HTM10
Chemical Properties	Na ₂ O %	0.35	0.35	0.35	0.35	0.15	0.1
	SiO ₂ %	0.02	0.03	0.02	0.02	0.08	0.08
	Fe ₂ O ₃ %	0.02	0.02	0.02	0.02	0.025	0.025
Physical Properties	SSA (m ² /g)	0.9	1.2	0.8	1.5	1.1	1.1
	D ₅₀ (Sedigraph) µm	4.5	4	5.5	3	3.5	3.5



Ground Alumina (Wider Distribution):

Our customized grades of alumina with coarser d_{50} ranging from 4 to 5 microns with a wider Particle Size Distribution are suitable for use in ramming masses and continuous casting refractory applications. Wider distribution and controlled Packed Bulk Density help in designing bodies with proper pore size distribution along with pro re nata sintering activity for best thermal shock properties.

	Parameters	AE304CB	AE305CB
Chemical Properties	Na ₂ O %	0.25	0.25
	SiO ₂ %	0.03	0.03
	Fe ₂ O ₃ %	0.02	0.02
Physical Properties	SSA (m ² /g)	1.2	1
	D ₁₀ (Sedigraph) μm	1.7	1.9
	D ₅₀ (Sedigraph) μm	3.7	4.3
	D ₉₀ (Sedigraph) μm	13	15.1



Ground Alumina (High Crystalline Alumina):

High Crystalline Alumina (HCA series) has very high degree of calcination along with a superior control on soda. The controlled particle size of these ground alumina is suitable for applications with higher requirements for thermal stability. A well controlled surface area, larger crystal sizes along with soda less than 0.1% helps in providing high creep resistance for the refractory applications. The additional benefits include enhanced abrasion resistance and lower shrinkage. These grades can also be used in neutral ramming masses depending on high application temperatures.

	Parameters	HCA3SG	HCA4FG
Chemical Properties	Na ₂ O %	0.08	0.08
	SiO ₂ %	0.06	0.06
	Fe ₂ O ₃ %	0.02	0.02
Physical Properties	SSA (m ² /g)	1.2	0.7
	D ₅₀ (Sedigraph) μm	3.5	4.3

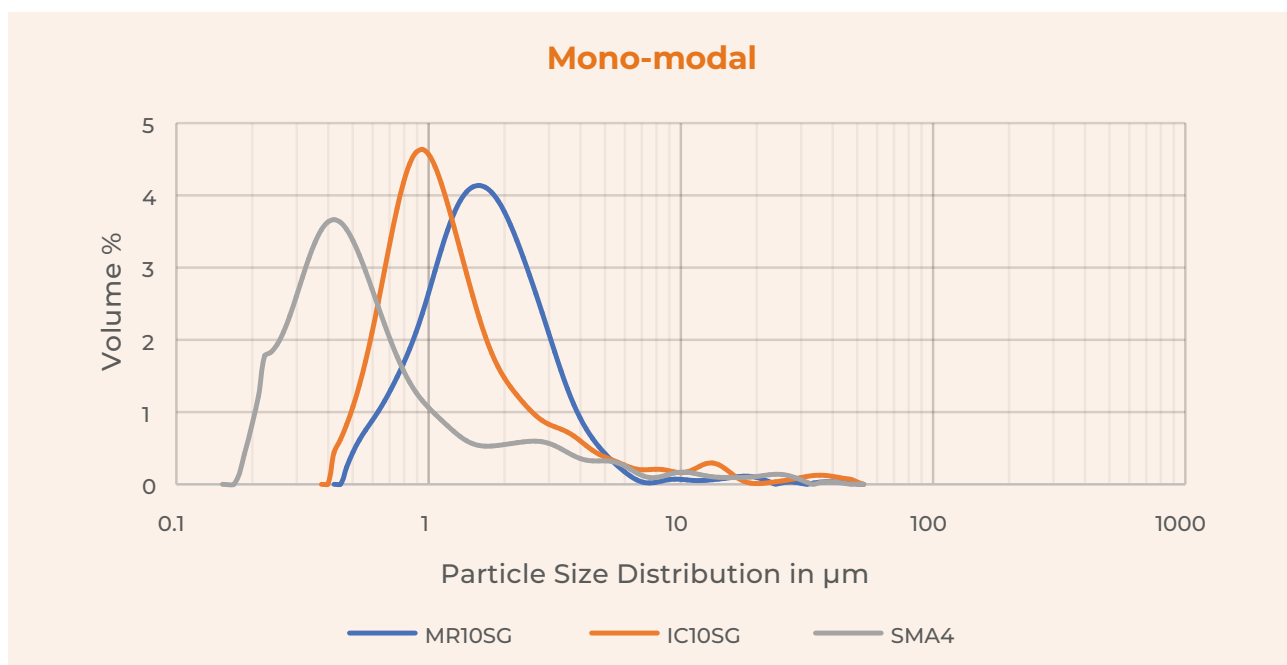
Reactive Alumina:

Reactive alumina from Hindalco is customized to produce high-performance refractories with pre-defined particle packing, rheology, consistent placement characteristics and superior hot and cold properties. This makes our reactive alumina suitable for slide gate refractories, self-flow castable, iron-runner castable, abrasion resistance products, shotcretes and other critical applications.

Monomodal Alumina:

Monomodal alumina is used along with ground alumina and other fine aggregates to provide a continuous particle size distribution (as per Andreason's packing) enabling flexibility in the design of refractory matrix PSD.

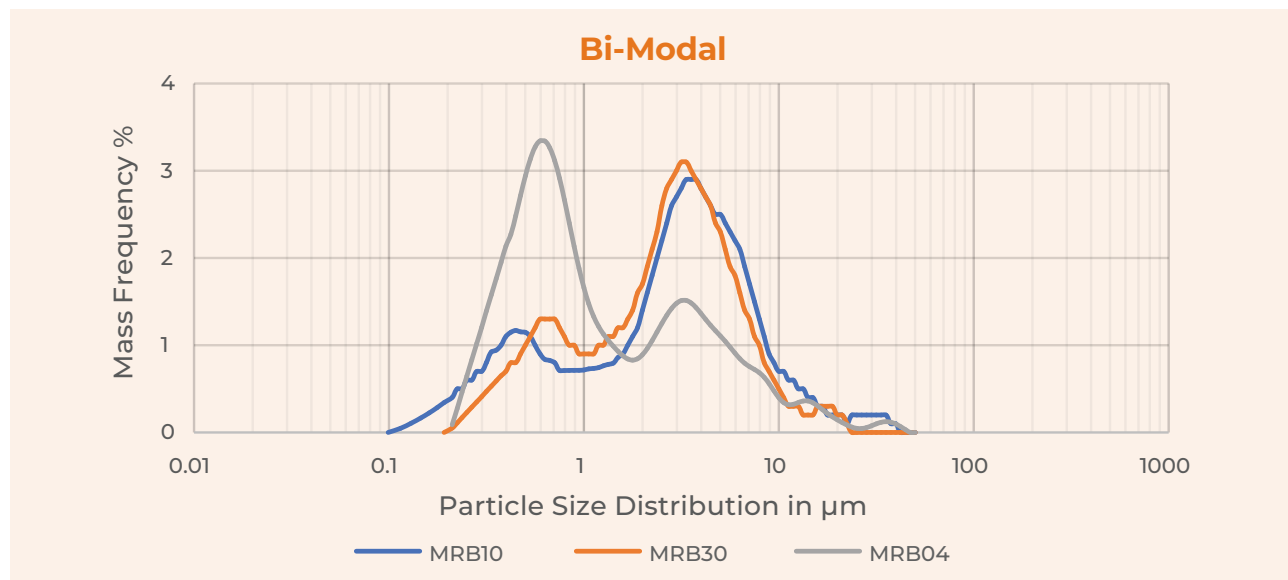
	Parameters	MR10SG	MRC	IC10SG	SMA4
Chemical Properties	Na ₂ O %	0.1	0.35	0.07	0.08
	SiO ₂ %	0.02	0.02	0.08	0.04
	Fe ₂ O ₃ %	0.015	0.02	0.025	0.02
Physical Properties	SSA (m ² /g)	1.8	12	3	6.5
	D ₅₀ (Sedigraph) μm	1.6	2.5	1.5	0.6



Bi-modal & Multimodal Reactive Alumina:

Hindalco's Bimodal and multimodal reactive alumina, having pre-optimized Particle Size Distribution, are used with mono-modal reactive and ground alumina to enhance the packing factor in the matrices with reduction of pore sizes and volume providing enhanced thermo-mechanical properties.

	Bi-Modal Alumina			Multi-Modal Alumina		
	Parameters	MRB04	MRB10	MRB20	MRB30	MRM01
Chemical Properties	Na ₂ O %	0.14	0.06	0.15	0.1	0.15
	SiO ₂ %	0.03	0.1	0.14	0.14	0.18
	Fe ₂ O ₃ %	0.02	0.03	0.02	0.02	0.02
Physical Properties	SSA (m ² /g)	4	3	3	3	4.5
	Water Absorption %	18	13	15	13	
	D ₅₀ (Sedigraph) μm	0.8	2.3	2	2.5	1.7



	A	SA	HT	IC10	SRM30	SRM906	SRM30FG	NSR03	HTM20	HTM10	AE304CB	AE305CB	HCA35G	HCA4FG	MR105G	MRC	IC105G	SMA4	MRB04	MRB10	MRB20	MRB30	MRM01	
Special Refractories	Synthetic Aggregate	●	●	●																				
	High Alumina Cement	●	●																					
Shaped	Fused Cast AZS		●	●																				
	Fused Cast Alumina			●																				
	Slide Gate Plates					●	●	●												●	●	●	●	●
	Con-cast Refractories					●	●	●		●	●	●	●	●	●									
Unshaped	High Alumina Bricks				●	●	●	●		●			●	●	●			●	●		●	●	●	
	Dense Conventional				●	●	●	●																
	Deflocculated							●	●	●	●	●			●			●	●	●	●	●	●	●
	Gunning							●								●			●	●		●		
	Neutral Ramming Mass										●	●	●	●										
	Plastics					●	●	●		●	●						●			●				
	Taphole clays					●	●	●				●	●											
	Trowelling					●	●	●	●								●			●				
Mortars					●	●	●		●	●						●			●					

Customer Service with...



Customized Products



Customized Packing



On Time in Full (OTIF) Delivery



Wide Distribution Network



Application Support

Creating a
circular economy to build a
#GreenerStrongerSmarter
and a sustainable future!



Our Global Reach



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