



**WE MANUFACTURE MATERIALS THAT MAKE THE WORLD
GREENER | STRONGER | SMARTER**

HINDALCO

FLAME RETARDANT ATH

SUSTAINABLE INTEGRATED MANUFACTURING

RETARDING FIRE | SUPPRESSING SMOKE | SAVING LIVES

ASIA'S LARGEST SINGLE LOCATION INTERGRATED SPECIALITY ALUMINA CHEMICAL PLANT



Turnover

USD 27 Billion
in FY23



50 Operations
units across
10 countries



Ranked

**World's most
sustainable**

Aluminium company

by *DJSI 2020,
2021 & 2022



68,500+
work force

ABOUT HINDALCO

An industry leader in Aluminium and Copper, Hindalco Industries Limited is the flagship company of Aditya Birla Group. Hindalco enjoys the pole position in Aluminium rolling globally and primary Aluminium production in Asia. Its copper smelter is one of the largest single location custom smelter globally. Hindalco Chemicals is Asia's Largest single location fully integrated specialty Alumina & ATH manufacturer.



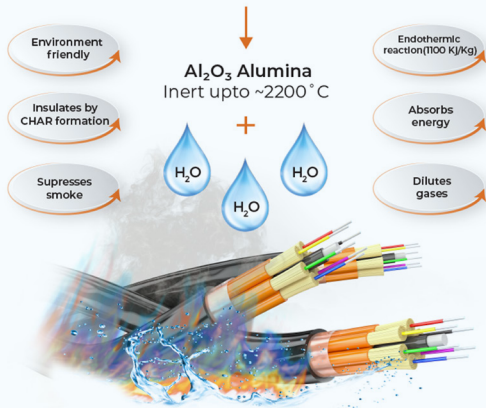
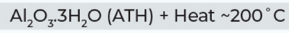
ecovadis

Business Sustainability Ratings

Ecovadis overall score is 57 which puts Hindalco in the 70th percentile



ATH Flame Retardant Mechanism



Water vapour

Endothermic reaction

Alumina

- Dilutes the flammable gases and O_2 Conc. Delays/Stop the spread of fire
- Increases the escape time
- Cooling from Endothermic reaction Absorbs Heat energy (1100 KJ/Kg) from the source
- Limit the smoke and fire by forming protective char layer (insulative barrier)
- Chemically inert, non-hazardous and good insulator
- Isolate the source & low smoke

FLAME RETARDANT

ATH is one of the widely used high performing Halogen Free Retardant Additive:



Halogen Free



Smoke Suppression



Non Corrosive



Non Volatile



Non Toxic & Inert



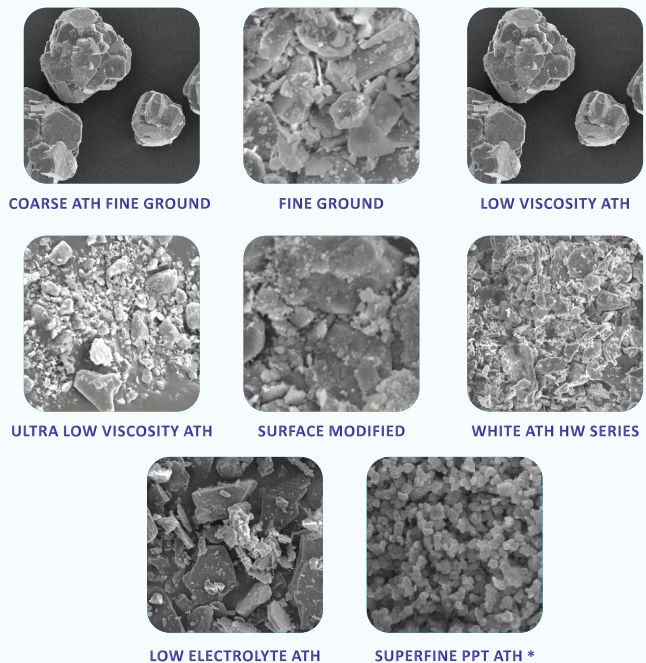
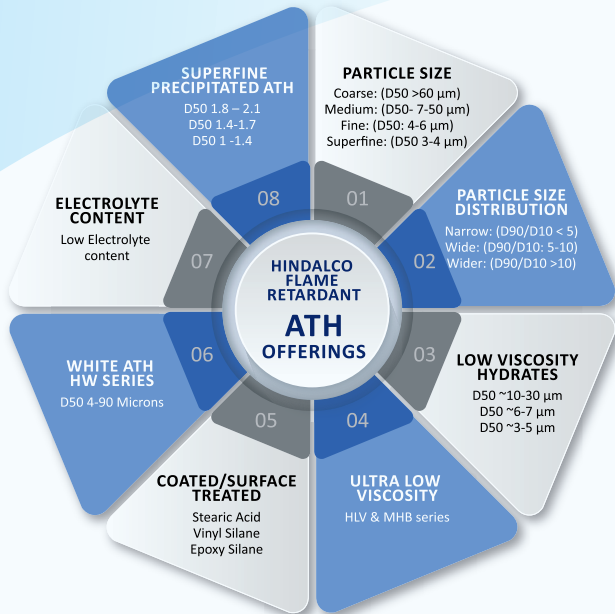
Safe to Handle

Hindalco is one of the most sustainable mines to market manufacturer of alumina trihydrate with end to end quality control.

Hindalco offers multiple grades of ATH for cable compounds, polymeric composites, rubber compounds, paints and coating etc. ATH helps in achieving stringent fire & smoke properties as per testing standards like UL94 V0, EN45545, IS 15061, UIC 546, UL 723, ASTM E 84 etc. The ATH is selected based on the particle size, distribution, surface properties, flow properties and processing properties required in the application.



Hindalco Flame Retardant Offerings



Superfine Precipitated Hydrate

Superfine precipitated hydrate is produced by controlled precipitation and crystal growth. These products are having very low electrolyte content which makes them an excellent Halogen Free Flame Retardant (HFFR) in cable compounds & many other applications.

Grade Name		SFH105	SFH108
Moisture (RT – 110 °C)	%	<0.35	<0.4
LOI (110 – 1000 °C)	%	34.50	34.50
Al(OH)3 by difference	%	99.7	99.7
Na2O	%	0.20	0.25
Fe2O3	%	0.02	0.03
SiO2	%	0.02	0.03
Average Particle Size D50 (Sedigraph)	µm	1.8	1.2
Specific Surface Area (SSA)	m2/gm	2-5	4-8
Oil Absorption (DOP)	g/100g	28-34	30-35
Brightness (Min.)	%	96	96

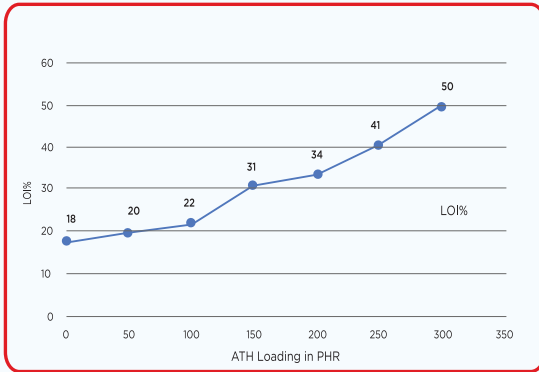
Surface modified grades of Superfine Precipitated ATH are also available.

Narrow Distributed Products Fine grades

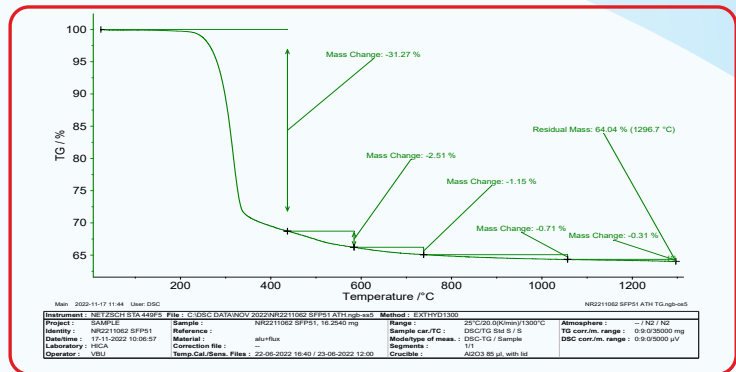
The Particle Size is precisely controlled in fully automatic closed milling machines suiting to the customer specific requirements.

Grade Name		SF300	RPF14	RPF18	DHM	DHM15	FH22D
Moisture (RT – 110 °C)	%	0.4	0.35	0.30	0.30	0.30	0.30
Average Particle Size D50 (Sedigraph)	µm	3.5	4.5	8.0	10	14	20
Oil Absorption (DOP)	g/100g	>45	45	40	35	35	30

Limiting Oxygen Index (LOI) % vs ATH Loading



Thermogravimetric analysis of Hindalco Alumina Trihydrate



Low Viscosity ATH

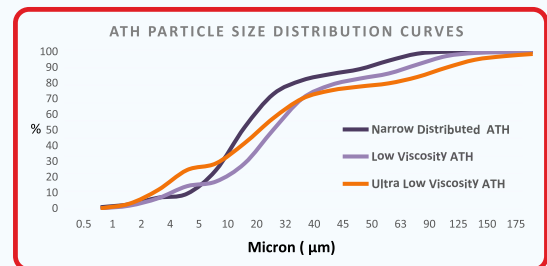
The particle size distribution is optimized to achieve better flow properties in the ATH resin mix.

Grade Name		FHC	MHV06	MHV20	TH15	LVH20	MH18D
Moisture (RT – 110 °C)	%	0.34	0.2	0.3	0.3	0.3	0.3
Average Particle Size D50 (Sedigraph)	µm	6	8	10	12	15	18
Oil Absorption (DOP)	g/100g	35	30	30	30	30	25

Ultra Low Viscosity ATH

The particle size distribution is optimized to achieve excellent processing properties at very high loading. These grades provide Lower Viscosity formulations, good glass wet out and low sedimentation in the resin. These grades are developed to achieve stringent fire properties.

Grade Name		MHB10	MHB30	HLV213	HLV206
Moisture (RT – 110 °C)	%	0.2	0.3	0.3	0.3
Average Particle Size D50 (Sedigraph)	µm	8	30	4	15
Oil Absorption (DOP)	g/100g	30	30	30	30



Surface Modified Grades

Optimized with organic coating to improve the compatibility with the Polymer/Rubber. These grades are very easy to disperse in the Polymer/Rubber matrix and improves the processing and production time.

Grade Name		HC041	HC081	MHV06VS	RPF14VS	DHM15ES
Moisture (RT – 110 °C)	%	0.34	0.20	0.30	0.30	0.30
LOI (110 – 1000 °C)	%	34.5	34.5	34.5	34.5	34.5
Al(OH)3 by difference	%	99.7	99.7	99.7	99.7	99.7
Average Particle Size D50 (Sedigraph)	µm	6.0	8.0	10	12	15
Oil Absorption (DOP)	g/100g	35	30	30	30	30

Low Electrolyte Grades

LE series grade with low electrolytic content are developed with very low soluble soda for improving dielectric property in the electrical applications.

Grade Name		MHV20LE	RFP14LE	RPF18LE	DHM15LE
Moisture (RT – 110 °C)	%	0.34	0.20	0.30	0.30
Al(OH)3 by difference	%	99.7	99.7	99.7	99.7
Average Particle Size D50 (Sedigraph)	µm	6.0	8.0	10	12
Oil Absorption (DOP)	g/100g	35	30	30	30
Electric Conductivity	MicroS/cm	<60	<60	<60	<60

Hindalco Innovation Center-Alumina (HIC-A)

HIC-A is recognized 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, the Bayer process, new products development, quality control and application research for enhanced understanding of end-usage of specialty aluminas and alumina hydrates.

Application Support

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

- Scanning electron microscope for studying crystal shape and structure
- Multiple equipments for PSD Analysis
- X-Ray fluorescence for elemental analysis
- X-ray diffraction for analyzing phases
- Surface area analyzer

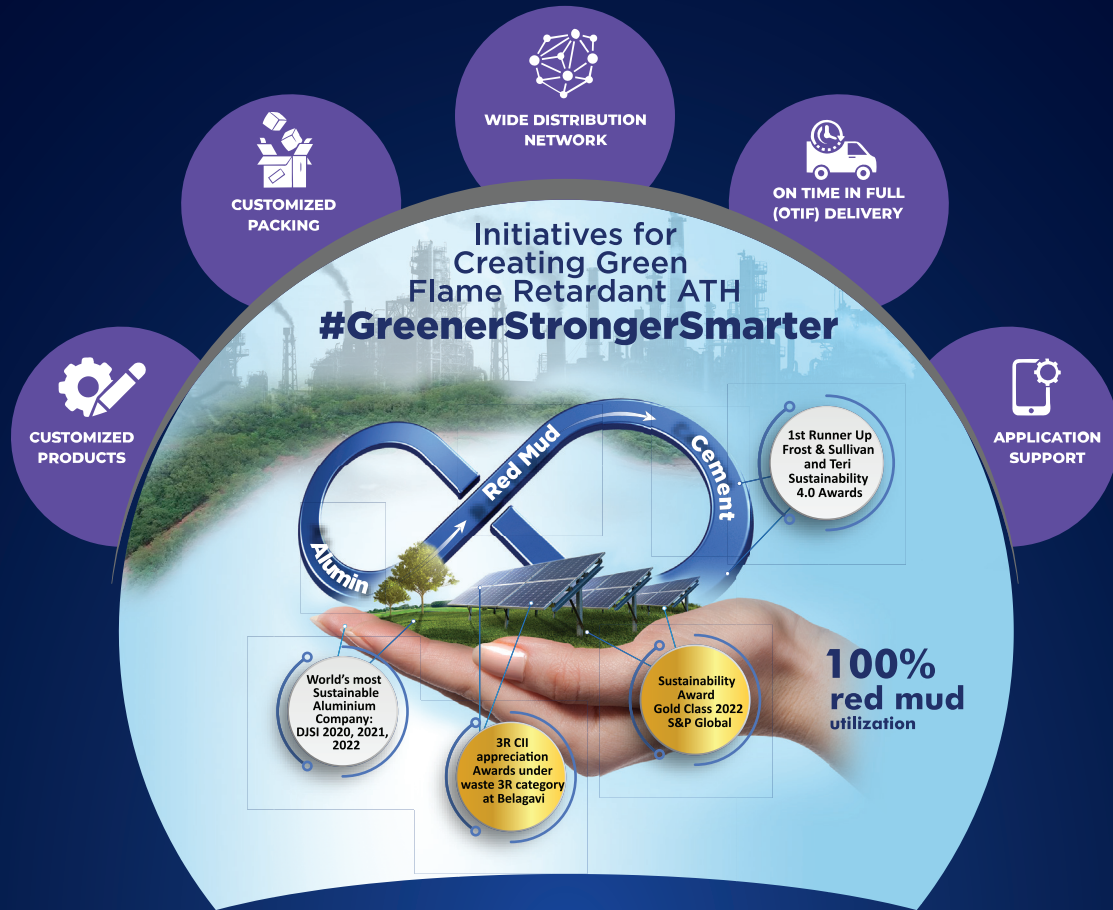
Partners In Progress

Hydrate Application Research Equipments Includes:

- HAAKE
- Compression moulding
- Flammability tester (UL 94)
- Limiting oxygen Index tester
- High voltage electrometer
- UV & Heat aging equipment



CUSTOMER SERVICE WITH



Green Energy 30 MW Renewable Hybrid (Wind + Solar) & 4 MW Biomass based power at Belagavi

OUR GLOBAL REACH



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