



ALUMINIUM TRIHYDROXIDE FOR
FLAME RETARDANT FILLERS

2019

GENERAL PROPERTIES



Aluminium trihydroxide (ATH) is a halogen free flame retardant filler. When heated above temperatures of approximately 200°C, an endothermic reaction will take place, liberating 3 molecules of crystal water and thereby removing energy from the combustion zone.

The loss of 34.6 % of its weight as water vapour also dilutes combustible gases.

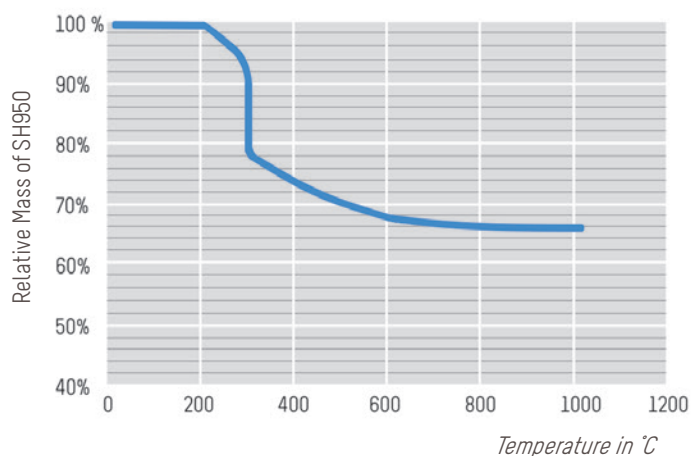
Furthermore, no toxic smoke or decomposition products are formed during this reaction, making ATH an ideal product to comply with regulations.

Alteo ATH grades have well defined particle size, top cut and oil absorption values. These and other relevant characteristics enable you to choose the grade best suited to your application, processing conditions and required filler loads.

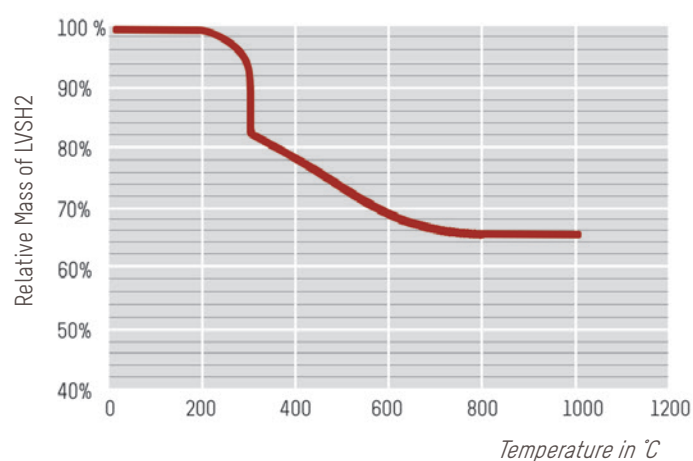
Name	Aluminium trihydroxide
Chemical Formula	$\text{Al}(\text{OH})_3$
C.A.S.	21645-51-2
Loss on Ignition	34.6 %
True Density	2.4g/cm ³
Hardness - Mohs scale	2.5 - 3.5
Refractive index	1.57

Thermogravimetric analysis (TGA) of Alteo ATH grades

TGA of SH950



TGA of LVSH2



As the most widely used mineral in flame retardancy applications, Alteo offers a full range of unground, ground and viscosity improved aluminium trihydroxide fillers that allow high load levels in multiple resin and plastics systems.

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Standard grades have a low fines content and a very well defined topcut.

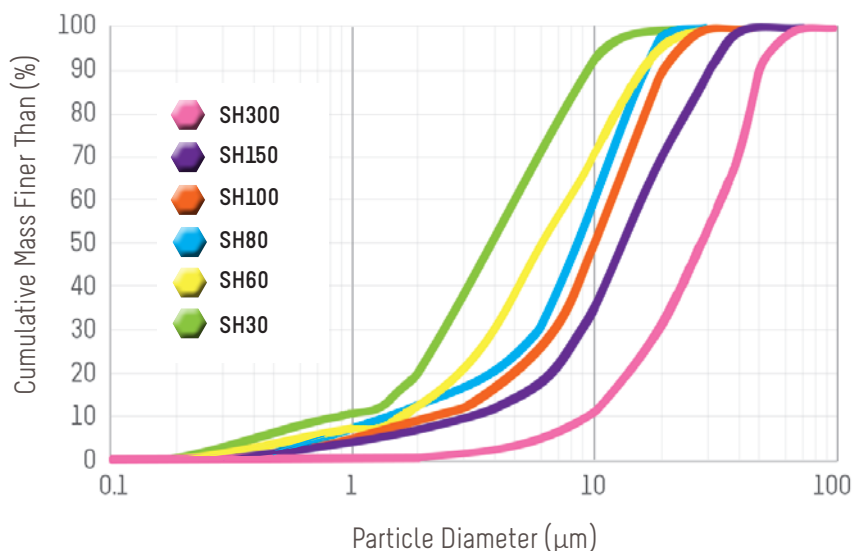
Available as unground and as ground grade from 25 to 4 microns.

		Unground ATH		Ground ATH						
		SH500	SH950	SH300	SH150	SH100	SH80	SH60	SH30	
Physical properties		Unit								
Particle Size Distribution (Cilas)										
D50	μm	55	95	25	14	11	8.5	6	4	
< 2 μm	%			3	3	4	9	15	17	
< 12 μm	%								92	
< 32 μm	%					98	100	99		
< 45 μm	%				99					
< 63 μm	%			95						
Oil Absorption (oleic acid)	ml/100g	22	20	22	25	27	31	29	30	
Specific Surface Area B.E.T	m²/g	0.2	0.15	1	1.2	1.5	3.0	5	9.5	
Moisture Content	%	0.1	0.05	0.15	0.15	0.20	0.3	0.5	0.9	
Loss On Ignition (100-1000°C)	%	34.6	34.6	34.6	34.6	34.6	34.6	34.6	34.6	
Chemical analysis										
Al(OH) ₃ - by difference	%	99.7	99.7	99.7	99.7	99.7	99.7	99.7	99.7	
Na ₂ O total	ppm	2300	1600	1600	2300	2300	2300	2300	2300	
CaO	ppm	100	100	100	100	100	100	100	135	
SiO ₂	ppm	55	40	45	60	60	60	65	70	
Fe ₂ O ₃	ppm	65	70	70	65	65	65	80	95	

Typical data



Particle Size Distribution - Cilas 1090 L

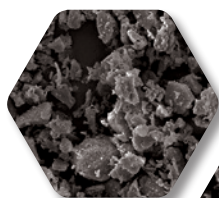
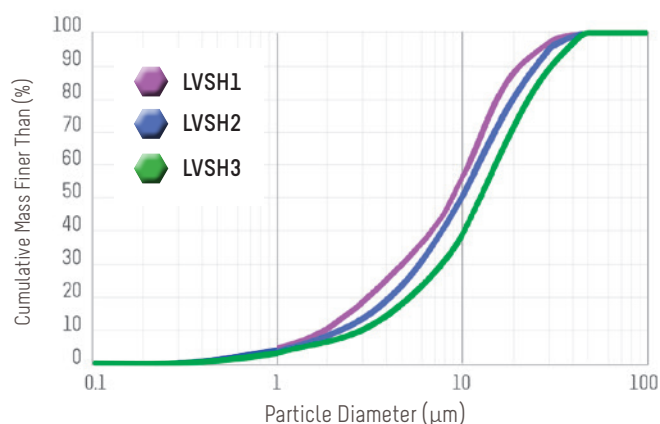




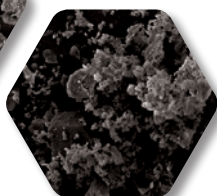
VISCOSITY IMPROVED GRADES

Responding to market needs, especially in resin based systems, Alteo has developed 2 ranges of improved and low viscosity grade hydrates. This enables our customers to increase loading levels that are necessary to meet evermore demanding legal requirements.

Particle Size Distribution - Cilas 1090 L

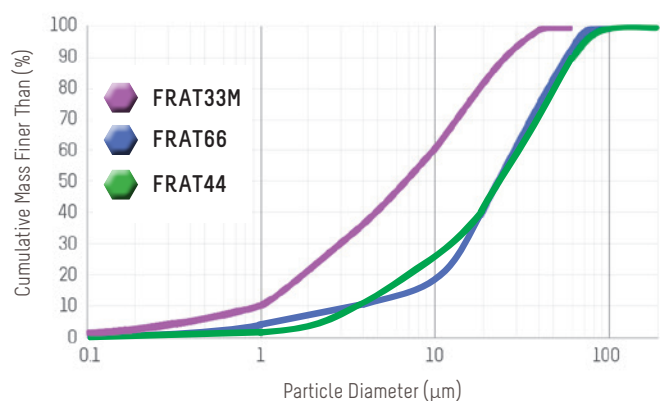


LVSH2



FRAT33M

Particle Size Distribution - Cilas 1090 L



Viscosity Optimized Grades

		LVSH1	LVSH2	LVSH3
Physical properties	Unit			
Particle Size Distribution (Cilas)				
D50	μm	9	11	15
< 2 μm	%	8.5	8	7
< 32 μm	%	98	94	
< 45 μm	%			96
Oil Absorption (oleic acid)	ml/100g	25	22	20
Specific Surface Area B.E.T	m²/g	4	3	2.2
Moisture Content	%	0.35	0.3	0.2
Loss On Ignition (100-1000°C)	%	34.6	34.6	34.6
Chemical analysis				
Al(OH) ₃ - by difference	%	99.7	99.7	99.7
Na ₂ O total	ppm	2300	2300	2300
CaO	ppm	100	100	100
SiO ₂	ppm	70	70	70
Fe ₂ O ₃	ppm	70	70	70

Typical data

Low Viscosity Grades

		FRAT33M	FRAT66	FRAT44
Physical properties	Unit			
Particle Size Distribution (Cilas)				
D50	μm	7.5	20	22
< 45 μm	%	99		
< 125 μm	%		100	98
Oil Absorption (oleic acid)	ml/100g	18	18	16
Specific Surface Area B.E.T	m²/g	3.4	2.5	1.5
Moisture Content	%	0.3	0.2	0.2
Loss On Ignition (100-1000°C)	%	34.6	34.6	34.6
Chemical analysis				
Al(OH) ₃ - by difference	%	99.7	99.7	99.7
Na ₂ O total	ppm	2300	2300	2300
CaO	ppm	100	100	100
SiO ₂	ppm	70	70	70
Fe ₂ O ₃	ppm	70	70	70

Typical data

ALTEO R&D

For Alteo, innovation and application R&D are major parts of its growth strategy.

Alteo enhances its R&D capabilities through its **application laboratory**: the installation of **state-of-the-art equipment**, the recruitment of **technical experts** and collaborations with key partners and **university laboratories**.

Alteo constantly strives for the **best specialty alumina-based solution to your ambitions**.

Contact our R&D team now at
www.alteo-alumina.com/contact



CUSTOMER CARE COMMITMENT

To meet your highest expectations, our Customer Care team will always strive to ensure a **first class** service.

Our commitment is to provide **full support** from your first call to the delivery of our products; with technical assistance, packing solutions and short lead times.

ALTEO AT A GLANCE

- A world leading fully-integrated supplier of specialty aluminas with a capacity of more than 600 000 tonnes of alumina based products (hydrates and calcined aluminas).
- Global sales network with 4 regional hubs, 17 offices and local warehouses around the world.
- Development centre in France.
- Leading raw material supplier to the following industrial markets: Ceramics, Refractories, Specialty Glass, Polishing, Flame retardants, Fillers and Coatings.

Design : www.emtacom.com



www.alteo-alumina.com

