



2024

**HALOGEN-FREE**  
**FLAME RETARDANT FILLERS**

# 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 water and thereby removing energy from the combustion zone.

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

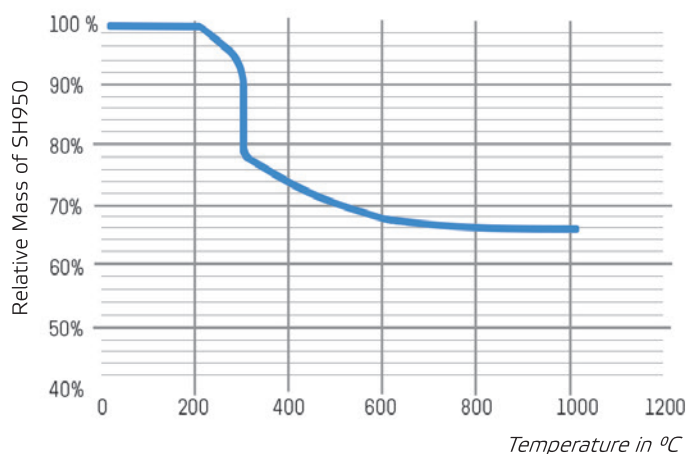
Furthermore, no toxic smoke or decomposition products are formed during this reaction, making ATH an ideal product to comply with regulations.

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 <sup>3</sup>
Hardness - Mohs scale	2.5 - 3.5
Refractive index	1.57

## Thermogravimetric analysis (TGA) of SH950 grade





# UNGROUND AND GROUND ATH

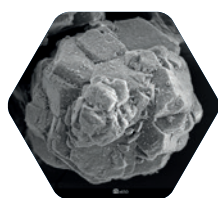


These are our standard grades, used in a wide variety of applications and polymer systems. Standard grades have a low fines content.

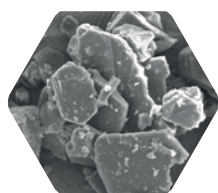
Available as unground and as ground grade from 23 to 3.5 microns.

		Unground ATH	Ground ATH						
		SH950	SH300	SH150	SH100	SH80	SH60	SH45	SH30
<b>Physical properties</b>	<b>Unit</b>								
Particle Size Distribution (Laser)									
D10	µm		6	4	4	3	2	1	1
D50	µm	95	23	13	11	8	6	5	3.5
D90	µm		65	30	25	18	15	13	10
Oil Absorption (oleic acid)									
Oil Absorption (oleic acid)	ml/100g		20	22	24	27	28	29	30
Specific Surface Area (BET)									
Specific Surface Area (BET)	m <sup>2</sup> /g	0.2	0.7	1.2	1.8	2.4	6.4	9.0	11.0
Moisture Content									
Moisture Content	%	0.05	0.20	0.20	0.20	0.20	0.30	0.50	0.70
Loss On Ignition (100-1000°C)									
Loss On Ignition (100-1000°C)	%	34.6	34.6	34.6	34.6	34.6	34.6	34.6	34.6
<b>Chemical analysis</b>									
Al(OH) <sub>3</sub> - by difference	%	99.7	99.7	99.7	99.7	99.7	99.7	99.7	99.7
Na <sub>2</sub> O total	ppm	1950	1950	1950	1950	1950	1950	1950	1950
CaO	ppm	80	80	90	70	70	70	70	70
SiO <sub>2</sub>	ppm	60	60	60	60	65	65	65	65
Fe <sub>2</sub> O <sub>3</sub>	ppm	75	75	75	75	75	75	75	75

*Typical data*

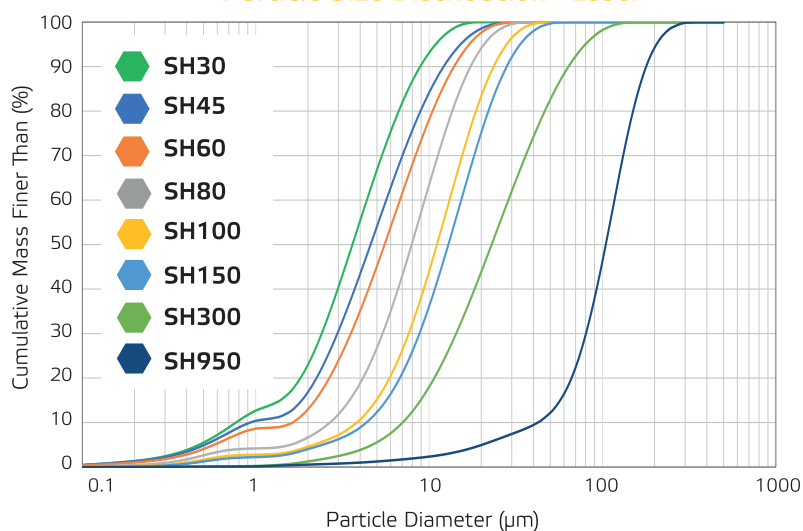


SH950



SH100

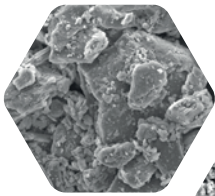
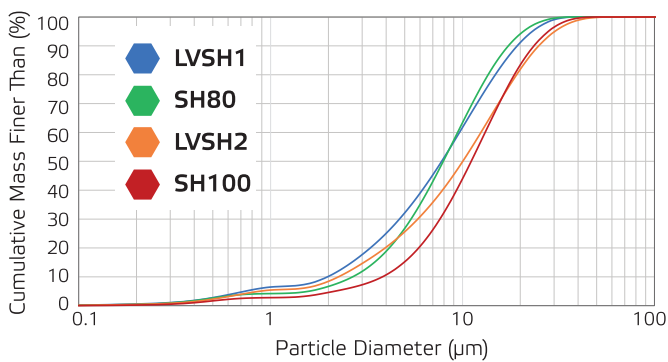
Particle Size Distribution - Laser



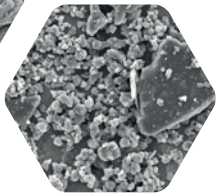
# HIGHER FILLER CONTENT

Alteo has developed 2 ranges of specific ATH enabling our customers to increase loading levels that are necessary to meet evermore demanding stringent regulations.

## Particle Size Distribution - Laser

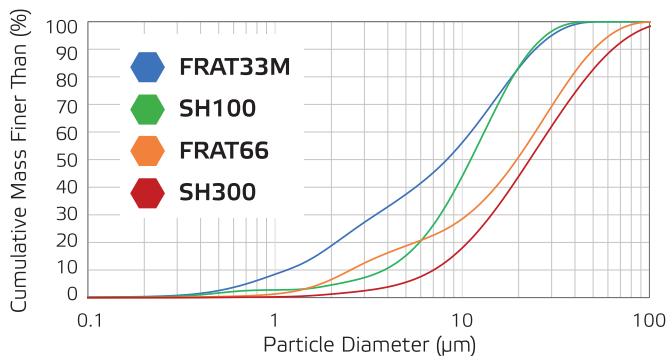


LVSH2



FRAT66

## Particle Size Distribution - Laser



Physical properties	Unit	Broad PSD	
		LVSH2	LVSH1
Particle Size Distribution (Laser)			
D10	µm	2	2
D50	%	10	8.5
D90	%	28	20
Oil Absorption (oleic acid)	ml/100g	25	27
Specific Surface Area (BET)	m <sup>2</sup> /g	4.0	4.2
Moisture Content	%	0.25	0.25
Loss On Ignition (100-1000°C)	%	34.6	34.6
Chemical analysis			
Al(OH) <sub>3</sub> - by difference	%	99.7	99.7
Na <sub>2</sub> O total	ppm	1950	1950
CaO	ppm	70	70
SiO <sub>2</sub>	ppm	70	70
Fe <sub>2</sub> O <sub>3</sub>	ppm	100	100

Typical data

## Optimized Packing Density

Physical properties	Unit	Optimized Packing Density	
		FRAT66	FRAT33M
Particle Size Distribution (Laser)			
D10	µm	2	1
D50	%	20	8
D90	%	60	26
Oil Absorption (oleic acid)	ml/100g	15	19
Specific Surface Area (BET)	m <sup>2</sup> /g	2.0	3.4
Moisture Content	%	0.10	0.20
Loss On Ignition (100-1000°C)	%	34.6	34.6
Chemical analysis			
Al(OH) <sub>3</sub> - by difference	%	99.7	99.7
Na <sub>2</sub> O total	ppm	1950	1950
CaO	ppm	70	70
SiO <sub>2</sub>	ppm	65	65
Fe <sub>2</sub> O <sub>3</sub>	ppm	75	75

Typical data

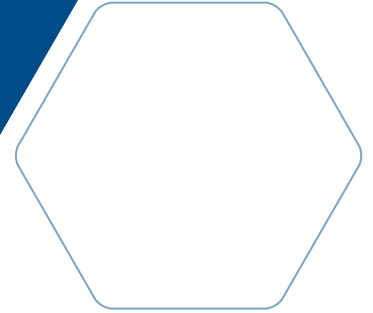
## ALTEO R&D

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

Alteo enhances its R&D capabilities through its **Innovation and Technical Excellence Center**: 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](http://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 leading integrated supplier of specialty products with the largest production capacity worldwide for calcined, pure and fine alumina.
- A global sales network with 4 regional hubs, 16 offices and more than 35 local warehouses around the world.
- A leading raw material supplier to the following industrial markets: Advanced Ceramics, Thermal Management EV-Batteries, Flame retardant, Polishing, Performance Refractories, Glass.

Design : Emeline MARTEL - Communication



[www.alteo-alumina.com](http://www.alteo-alumina.com)