TIMal

THERMAL DISSIPATION SOLUTION

SPECIALTY **ATH & ALUMINA** FOR

THERMAL MANAGEMENT

2026

afaq ISO 9001 Qualité AFNOR CERTIFICATION

afaq ISO 14001 Environnement AFNOR CERTIFICATION

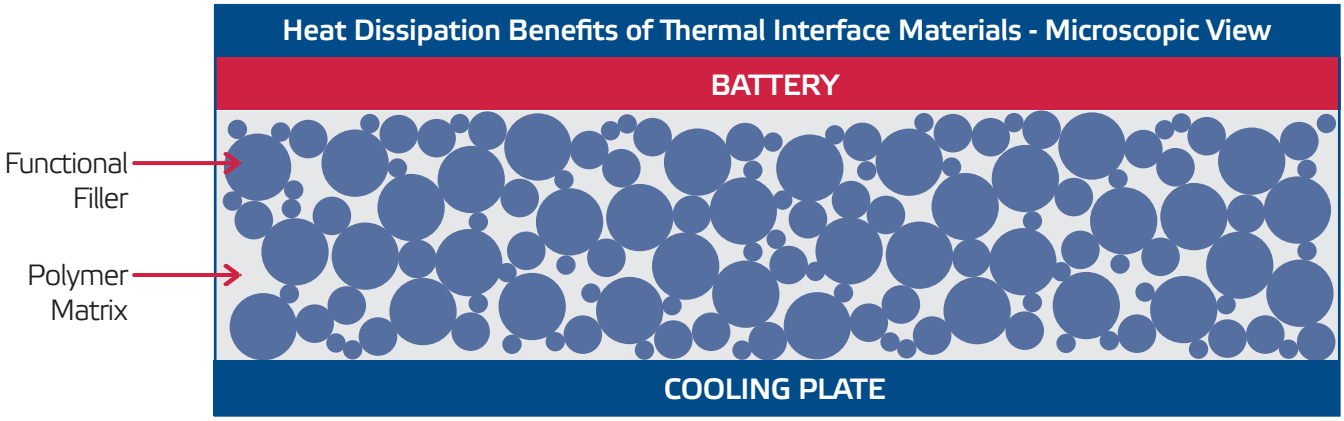
afaq ISO 45001 Santé Sécurité au Travail AFNOR CERTIFICATION

afaq ISO 50001 Énergie AFNOR CERTIFICATION

alteo SMART ALUMINA//

ALTEO'S ATH & ALUMINA
TAKING THE HEAT

Rapid and effective **heat dissipation** is an increasingly important requirement for today's ever more powerful **electronic components.** With the rising market for Lithium-ion and Sodium-ion batteries, particularly in electric vehicles (EV) and energy storage systems (ESS), managing heat generated by both electronics and battery cells is crucial. Our advanced thermal solutions, based on ATH (Aluminium trihydroxide), calcined and spherical alumina, efficiently dissipate heat, ensuring optimal performance, safety, and the longevity of your systems in these high-demand applications.



The main forms of thermal interface materials are

- **adhesives** – for bonding and sealing in battery packs and modules
- **gap fillers** – to fill in the gaps between two components
- **potting materials** – to encapsulate or fix electronic or electrical parts
- **thermal pads** – flexible material with good compression ratio used for uneven surfaces, reducing vibration and shock-dampening
- **greases and gels** – when improved conformability and easier dismantling are required

The TIMal range provides particularly suitable fillers for **silicone**, **polyurethane, epoxy and acrylic** resins.

It can also add heat dissipation properties to

- CCL (copper-clad laminates)
- ceramic **alumina substrates**

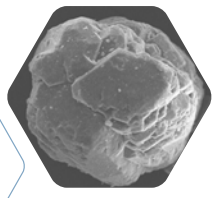
For all these materials TIMal will ensure critical characteristics such as

- **isotropic thermal conductivity**
- **lowest viscosity with maximum filling**
- **electrical insulation**

This is achieved through strictly controlled

- **particle size distribution**
- **chemistry**

which enables Alteo to offer an extensive range of filler options as indicated in the tables below. Our technical team can help you find the ideal products to meet your material needs.



TIMal H
radial ATH

ATH RANGE - TIMal	Unit	H	H4	H3	H2	H1	M3	HM66	HM33
Physical Properties		Monomodal					Multimodal		
Particle Size Distribution (Laser)	-								
D10	µm	35	6	4.9	2.5	2.2	5.0	2.0	2.0
D50	**µm**	**95**	**21**	**13.0**	**11.0**	**8.5**	**25.0**	**20.0**	**9.0**
D90	µm	160	60	27.0	26.0	22.0	110.0	60.0	21.0
Residue wet screen >45µm	%	-	-	1.00	0.25	0.15	-	-	-
Specific Surface Area (BET)	m^2/g	0.1	0.6	1.1	3.0	4.0	0.7	2.0	2.9
Oil Absorption (oleic acid)	ml/100g	20	20	25	21	23	20	15	26
Relative Humidity (20-105ºC)	%	0.05	0.05	0.15	0.30	0.40	0.05	0.10	0.20
Loss on ignition (20-1000ºC)	%	34.6	34.6	34.6	34.6	34.6	34.6	34.6	34.6
Chemical Properties									
$Al(OH)_3$ - on dry basis	%	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8
Al_2O_3 - on dry basis	%	65	65	65	65	65	65	65	65
Na_2O soluble	ppm	100	100	100	100	100	100	100	200
Additional data									
pH	-	9.0	9.3	9.3	9.3	9.3	8.6	9.0	9.3
Electrical conductivity	µS/cm	35	60	60	60	60	23	25	89

These are typical values and are not guaranteed limits.

ALUMINA RANGE - TIMal	Unit	J5	J2	G5	12	66	16	M1
Type		Calcined Alumina						
Physical Properties		Monomodal						Multimodal
Particle Size Distribution (Laser)	-							
D10	µm	2.3	1.9	2.0	1.0	0.8	0.2	0.4
D50	**µm**	**5.0**	**5.0**	**5.0**	**2.3**	**1.8**	**0.55**	**2.3**
D90	µm	10	12	13	5.5	4.0	1.3	4.0
Residue wet screen >45µm	%	0.01	0.5	1.5	0.2	0.05	0.1	0.2
Specific Surface Area (BET)	m^2/g	0.75	1.0	0.8	1.8	2.5	5.5	2.5
Oil Absorption (oleic acid)	ml/100g	18	22	21	15	15	17	18
Relative Humidity (20-105ºC)	%	0.10	0.05	0.05	0.05	0.10	0.20	0.15
Chemical Properties								
Al_2O_3 - on dry basis	%	99.8	99.85	99.6	99.8	99.8	99.85	99.8
Na_2O soluble	ppm	700	150	700	150	150	400	150
Additional data								
pH	-	9.0	8.8	9.0	8.8	9.3	9.2	9.0
Electrical conductivity	µS/cm	90	50	80	45	95	140	100

These are typical values and are not guaranteed limits.

All our calcined alumina grades are based on alpha alumina crystalline structure to ensure optimal heat dissipation – intrinsic bulk thermal conductivity of α-alumina : 30 W/(m.K).

All TIMal products can be **surface treated** upon request : hydrophobic, amino, epoxy, methacryl, vinyl to improve affinity at the polymer matrix-filler interface.

TIMAL SPHERICAL ALUMINA
THE SMART FILLER FOR THERMAL INTERFACE MATERIALS

Designed for the most demanding thermal management applications in electric vehicles and power electronics, Alteo's TIMal spherical aluminas deliver outstanding performance where it matters most.

Their optimised spherical morphology enables higher filler loadings at lower viscosity, making them the ideal choice for thermally conductive pads, gap fillers, and potting compounds.

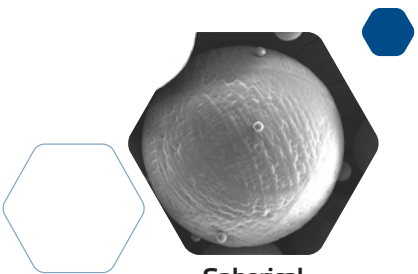
Spherical Alumina listed in this brochure are distributed by Alteo for Europe only. For other regions, please contact us.

SPHERICAL ALUMINA RANGE - TIMal	Unit	TIM90SA	TIM70SA	TIM40SA	TIM10SA	TIM05SA	TIM02SA
Physical Properties							
Particle Size Distribution (Laser)	-						
D10	µm	81	50	27	6	3	1
D50	**µm**	**105**	**75**	**47**	**12**	**6**	**2**
D90	µm	145	110	75	25	13	3.8
Specific Surface Area (BET)	m^2/g	0.05	0.05	0.07	0.18	0.35	1.40
Relative Humidity (20-105ºC)	%	0.01	0.02	0.02	0.02	0.04	0.08
Loss on ignition (20-1000ºC)	%	0.03	0.05	0.05	0.05	0.10	0.15
Chemical Properties							
Al_2O_3 - on dry basis	%	99.8	99.8	99.8	99.8	99.8	99.8
Na_2O	ppm	200	200	200	200	200	200
Fe_2O_3	ppm	125	130	125	145	145	125
Additional data							
pH	-	7.2	7.3	7.2	7.1	7.2	7.4
Electrical conductivity	µS/cm	23	19	21	9	11	23

These are typical values and are not guaranteed limits.

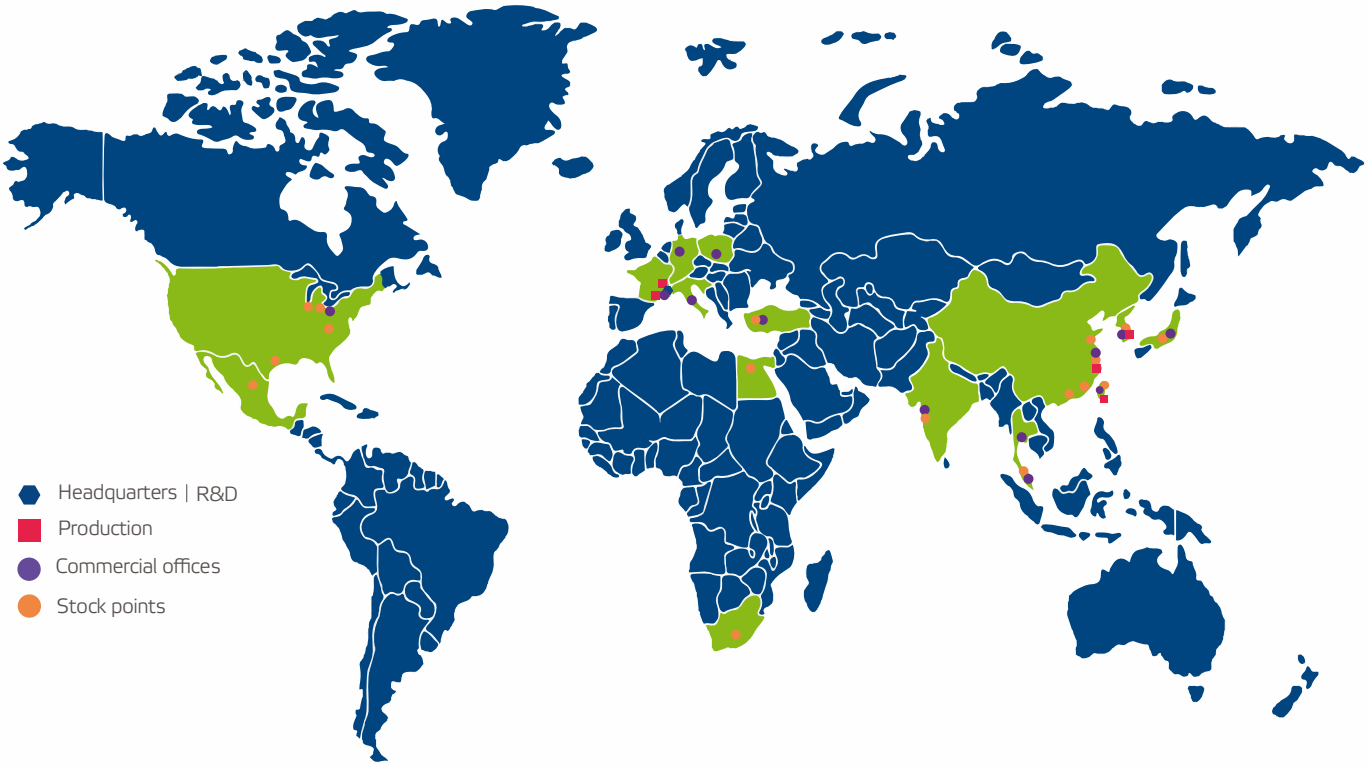
Why choose TIMal Spherical Alumina ?

- **Superior thermal conductivity** – based on α-alumina crystalline structure (30 W/m·K intrinsic)
- **High packing density** – spherical shape maximises filler content while minimising compound viscosity
- **Electrical insulation** – safe and reliable in battery modules and power electronics
- **Tailored particle size** – broad portfolio to suit monomodal and multimodal formulations
- **REACH compliant** – no SVHC substances, fully suited for the European market



Spherical Alumina

ALTEO WORLDWIDE



SUSTAINABILITY

ALTEO strives to transform industries with solutions that create real sustainability benefits for customers and society. By managing our operations responsibly and minimizing environmental impact, we place sustainability at the heart of how we innovate, operate, and collaborate—fueling sustainable growth and long-term value creation.

Regarding greenhouse gas emissions (CO2), we have achieved a 63% reduction in our emissions since 2015, in line with the French National Low-Carbon Strategy. Concerning water withdrawals, we have reduced our consumption by 50% compared with 2019, following the launch of our Water Sobriety Plan and the commissioning of our wastewater treatment plant.

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, 13 offices and more than 35 local warehouses around the world.
- A leading raw material supplier to the following industrial markets: Thermal Management, Lithium-ion and Sodium-ion batteries, Flame retardants, Advanced Ceramics, Polishing, Performance Refractories, Glass.

Design : Emeline MARTEL - Communication

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