



# CERAMICS

Product Brochure



[www.almatis.com](http://www.almatis.com)

**INNOVATE ALUMINA AND  
BEYOND FOR TOMORROW**



# ALUMINA FOR CERAMICS

Strong and Versatile

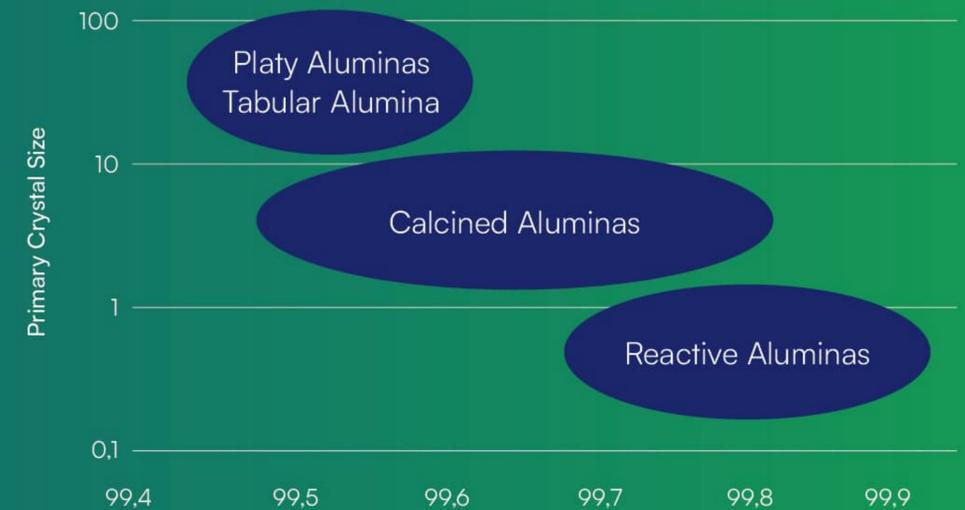


Ceramic is a term meaning “to burn,” as in burned earth, with earthenware being one of the first known applications. Today the term “ceramic” encompasses a much wider range of materials and applications.

Alumina is one of the most common materials used in ceramic applications. Its strong chemical bonds and physical stability provide superior properties in key application areas ranging from fine grained technical ceramics to wear resistant ceramics and electrical insulators.

Almatis offers the broadest portfolio of specialty calcined and tabular aluminas in the industry. Our premium aluminas are regarded for their highly consistent properties, ensuring efficient, defect-free ceramic manufacturing.

ALMATIS PORTFOLIO OF ALUMINAS



## Major Application Areas:

Electronic

Chemical / Environmental

Structural / Wear

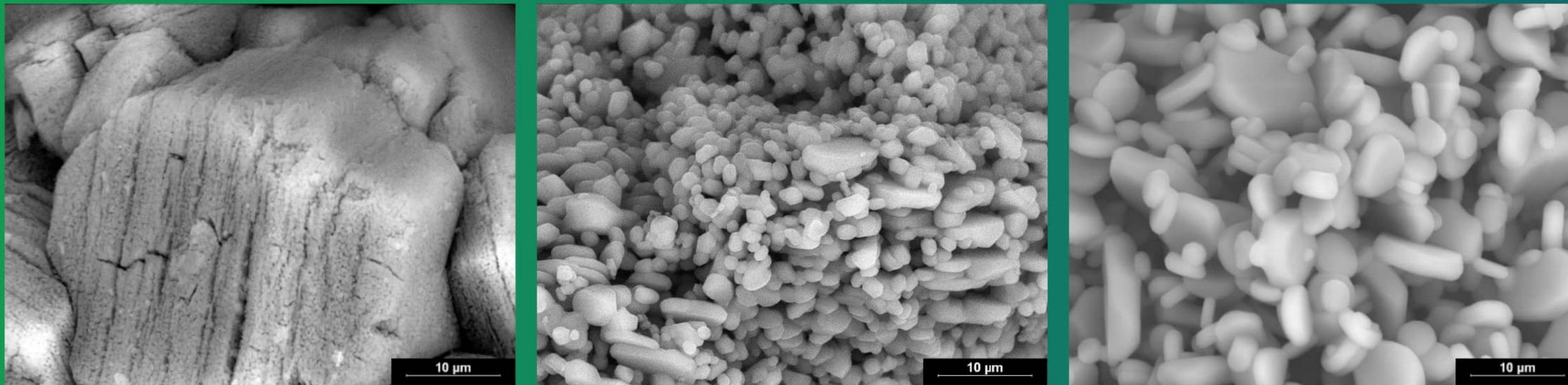
Thermal

# ALUMINA FOR CERAMICS

Almatis Processing – Calcination / Sintering



Increased temperature and primary crystal size, decreased specific surface area:



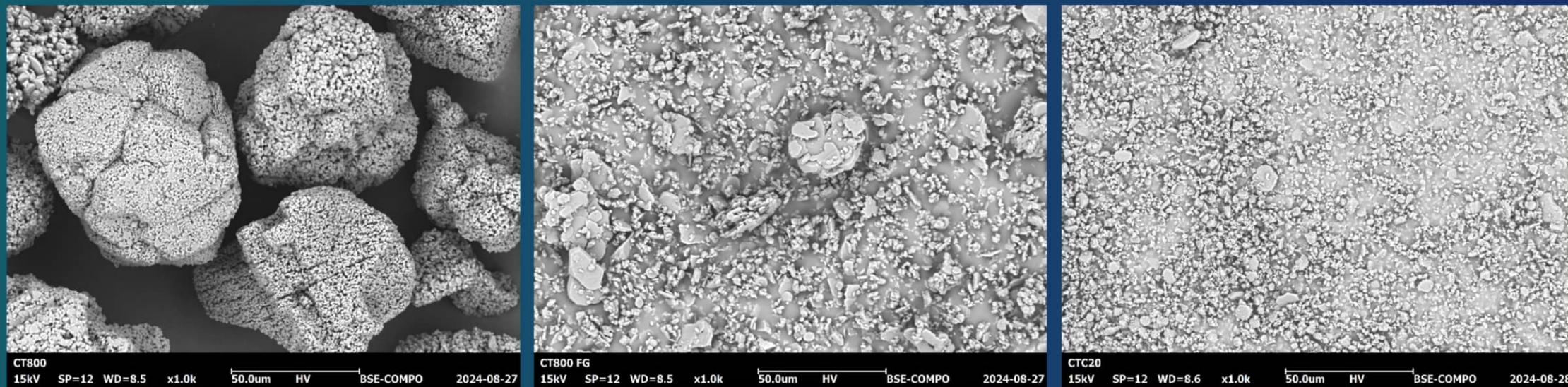
Through thermal processing, alumina transitions into the alpha alumina phase. By optimizing the process, Almatis achieves a purity level exceeding 99.9% and facilitates the growth of primary crystals up to 25µm in size.

# ALUMINA FOR CERAMICS

## Almatis Processing – Grinding / Sizing



Reduced particle size and top cut control, increased surface area:



During crushing, grinding and sizing processes, the particle size of the unground aggregates are reduced according to market needs.

**G** means ground and correlates with a top cut of 63 $\mu$ m

**FG** means Fine Ground and correlates with top cut of 45 $\mu$ m

**SG** means Super Ground and correlates with a top cut of 20 $\mu$ m





## ELECTRONIC SUBSTRATES

Electronic substrates are the base supports for electronic circuit production for computer chips, multi-chip modules, circuit boards and disk drives. Almatis offers unground and continuous ground calcined aluminas for thick-, mid- and thin-film electronic substrates.

## ANTENNA COMPONENTS

Alumina is an essential material for antenna components, offering superior dielectric properties, high thermal conductivity, and excellent mechanical strength. Ideal for high-frequency applications, alumina delivers reliable performance and durability in demanding environments, making it a key material for advanced ceramic antenna production.

## SEMICONDUCTOR / WAFER PROCESSING EQUIPMENT

Almatis aluminas are crucial in semiconductor and wafer production equipment, providing exceptional purity, thermal stability, and chemical resistance. Its use ensures precise manufacturing processes, extending the lifespan of components and enhancing performance in high-temperature and corrosive environments. Almatis offers a wide range of products with purities >99.9%.

## CIRCUIT BREAKER / METALLIZED CERAMICS

Alumina is vital in circuit breakers, offering outstanding electrical insulation, thermal resistance, and mechanical strength. It ensures reliable performance under high voltage and extreme conditions, enhancing the safety and durability of circuit breakers. Almatis provides products with precisely controlled shrinkage, ensuring high first-pass yield in ceramic production.

## RESISTOR RODS

Alumina is essential for resistor rods, providing excellent thermal conductivity, electrical insulation, and mechanical strength. Its high resistance to heat and wear ensures consistent performance and longevity.

## SPARK PLUGS

Alumina is critical in spark plugs, offering superior thermal conductivity, electrical insulation, and mechanical durability. Its high resistance to heat and corrosion ensures reliable ignition performance and longevity. Almatis offers alumina enabling customers to achieve high crystal sizes for highest dielectric and mechanical strength.



## Spark Plugs / Resistor Rods

Product	Unit	A10 (-325)	HVA (FG)	A3500 (SG)	CL3000 (FG/SG)	CT700	CT800 (FG/SG)	CL2500 (SG)	A152 SG	CT1200 (SG)
Green Density	[g/cm <sup>3</sup> ]			2.27	2.28	2.3	2.28	2.22	2.40	2.38
Al <sub>2</sub> O <sub>3</sub>	[%]	99.7	99.7	99.8	99.8	99.7	99.7	99.8	99.8	99.85
Na <sub>2</sub> O	[%]	0.08	0.1	0.08	0.05	0.12	0.12	0.06	0.06	0.06
SiO <sub>2</sub>	[%]	0.04	0.1	0.01	0.01	0.01	0.01	0.01	0.03	0.01
Surface Area	[m <sup>2</sup> /g]	0.2 (0.5)	0.5 (0.7)	0.5 (1.9)	0.6 (0.9/1.0)	0.65	0.7 (0.9/1.0)	0.95 (1.2)	4.3	1.2 (3.1)
Primary Crystal Size	[μm]	4.5	2.6	2.5	2.1	2	1.9	1.7	1.2	1.2
FG/-325 d50	[μm]	7.9	5.1		4.3		4.0			
SG d50	[μm]			2.8	3.7		3.4	3.5	1.4	1.2

## Electronic Substrates

Product	Unit	A10 (-325)	CL5000 (FG)	CL3000 (FG/SG)	A14 (-325)	CL2500 (SG)	CT3000 SG	A16 SG
Al <sub>2</sub> O <sub>3</sub>	[%]	99.7	99.8	99.8	99.8	99.8	99.7	99.8
Na <sub>2</sub> O	[%]	0.08	0.06	0.05	0.03	0.06	0.08	0.07
SiO <sub>2</sub>	[%]	0.04	0.02	0.01	0.02	0.01	0.03	0.03
Surface Area	[m <sup>2</sup> /g]	0.2 (0.5)	0.34 (0.6)	0.6 (0.9/1.0)	0.55 (0.7)	0.95 (1.2)	7.5	8.9
Primary Crystal Size	[μm]	4.5	3.6	2.1	1.9	1.7	0.5	0.5
FG/-325 d50	[μm]	7.9	6.0	4.3	0.8			
SG d50	[μm]			3.7		3.5	0.55	0.46



## Semiconductor Processing Equipment / Antennas

Product	Unit	CT1200 (SG)			CT3000 (SG)		
			XLS	ULS		XLS	ULS
Green Density	[g/cm <sup>3</sup> ]	2.38	2.32	2.30	2.25	2.25	2.22
Al <sub>2</sub> O <sub>3</sub>	[%]	99.8	99.85	99.9	99.7	99.8	99.9
Na <sub>2</sub> O	[%]	0.06	<0.03	<0.01	0.08	<0.03	<0.01
SiO <sub>2</sub>	[%]	0.01	<0.03	<0.01	0.03	<0.03	<0.02
Surface Area	[m <sup>2</sup> /g]	1.2 (3.1)	1.2 (3.0)	1.2 (3.0)	7.5	7.8	7.0
Primary Crystal Size	[μm]	1.2	1.2	1.2	0.5	0.5	0.5
SG d50	[μm]	3.1	3.0	3.0	0.55	0.55	0.55

## Metallized Ceramics

Product	Unit	CL5000 (FG)	CL3000 (FG/SG)	A14 (-325)
Al <sub>2</sub> O <sub>3</sub>	[%]	99.8	99.8	99.8
Na <sub>2</sub> O	[%]	0.06	0.05	0.03
SiO <sub>2</sub>	[%]	0.02	0.01	0.02
Surface Area	[m <sup>2</sup> /g]	0.34 (0.6)	0.6 (0.9/1.0)	0.55 (0.7)
Primary Crystal Size	[μm]	3.6	2.1	1.9
FG/-325 d50	[μm]	6.0	4.3	4.9
SG d50	[μm]		3.7	



# CHEMICAL APPLICATIONS



## CATALYST CARRIERS

Alumina is ideal for catalyst carriers, providing excellent surface area, thermal stability, and resistance to chemical degradation. Its properties enhance catalytic efficiency and durability. Almatis offers a wide range of products to enable customers to find best combination of strength and maximum porosity.

## CATALYTIC SUBSTRATES / HONEYCOMB

Alumina is essential for catalytic substrates and honeycomb ceramics, offering high thermal stability, corrosion resistance, and a large surface area. It enhances catalytic efficiency and durability, making it the perfect material for the production of reliable, high-performance substrates in automotive exhaust systems. Almatis has a proven track record of products with highest stability and tightest particle size control.

## LABWARE

Alumina is vital in labware, providing exceptional chemical resistance, thermal stability, and mechanical strength. Its purity and durability make it ideal for producing high-quality crucibles, tubes, and other labware. Almatis products show highly controllable performance in any kind of forming method like slip casting, axial pressing or extrusion.

## SENSORS

Alumina is crucial for sensors, offering excellent electrical insulation, thermal stability, and corrosion resistance. Its properties ensure precise and reliable performance in various environments, making alumina the key material for producing high-quality, durable sensors in automotive, industrial, and environmental applications.

## FLUID HANDLING COMPONENTS / VALVES / SEALINGS / RINGS

Alumina is essential in fluid handling components, providing outstanding chemical resistance, wear resistance, and thermal stability. Its durability and purity make it ideal for manufacturing high-performance valves, seals, and pumps. Almatis low soda aluminas are ideal to achieve highest chemical resistance in corrosive medias.

## FILTERS AND MEMBRANES

Alumina is an excellent choice for filters and membranes, offering high porosity, chemical resistance, and mechanical strength. Its superior filtration performance and durability make it ideal for water treatment, industrial processes, and environmental applications. Almatis enables customers to achieve tightest control of pore size distribution by offering product with close particle size distribution.



# CHEMICAL APPLICATIONS



## Catalyst Carrier

Product	Unit	CL3000 (FG/SG)	A14 (-325)	CL2500 (SG)	CT1200 (SG)	A152 SG	P730	A13-325	A16 SG	CT3000 SG	A1000 SG
Green Density	[g/cm <sup>3</sup> ]	2.28	2.31	2.22	2.38	2.34			2.17	2.25	2.11
Al <sub>2</sub> O <sub>3</sub>	[%]	99.8	99.8	99.8	99.85	99.8	99.5	99.8	99.8	99.7	99.8
Na <sub>2</sub> O	[%]	0.05	0.03	0.06	0.06	0.06	0.4	0.12	0.07	0.08	0.07
SiO <sub>2</sub>	[%]	0.01	0.02	0.01	0.01	0.03	0.01	0.01	0.03	0.03	0.03
Surface Area	[m <sup>2</sup> /g]	0.6 (0.9/1.0)	0.55 (0.7)	0.95 (1.2)	1.2 (3.1)	4.3	12	11	8.9	7.5	7.6
Primary Crystal Size	[μm]	2.1	1.9	1.7	1.2	1.2	<1.0	<1.0	0.5	0.5	0.5
FG/-325 d50	[μm]	4.3	4.9								
SG d50	[μm]	3.7		3.5	3.1	1.2	7	3.6	0.46	0.55	0.5

## Catalytic Substrates

Product	Unit	A10 (-325)	HVA (FG)	A3500 (SG)	WRA (FG)	A2 (-325 CR)	CT1200 (SG)	A16 SG	CT3000 SG	A1000 SG	RG4000
Al <sub>2</sub> O <sub>3</sub>	[%]	99.7	99.7	99.8	99.7	99.6	99.85	99.8	99.7	99.8	99.8
Na <sub>2</sub> O	[%]	0.08	0.1	0.08	0.12	0.25	0.06	0.07	0.08	0.07	0.08
SiO <sub>2</sub>	[%]	0.04	0.01	0.01	0.01	0.02	0.01	0.03	0.03	0.03	0.03
Surface Area	[m <sup>2</sup> /g]	0.2 (0.5)	0.5 (0.7)	0.5 (1.9)	0.6 (0.85)	0.5 (0.7)	1.2 (3.1)	8.9	7.5	7.6	7.2
Primary Crystal Size	[μm]	4.5	2.6	2.5	2.4	2.4	1.2	0.5	0.5	0.5	0.5
FG/-325 d50	[μm]		5.1		4.4	5.2					
SG d50	[μm]			2.8			3.1	0.46	0.55	0.5	0.6

# CHEMICAL APPLICATIONS



## Labware and Sensors

Product	Unit	A16 SG	CT3000 SG
Green Density	[g/cm <sup>3</sup> ]	2.17	2.25
Al <sub>2</sub> O <sub>3</sub>	[%]	99.8	99.7
Na <sub>2</sub> O	[%]	0.07	0.08
SiO <sub>2</sub>	[%]	0.03	0.03
Surface Area	[m <sup>2</sup> /g]	8.9	7.5
SG d50	[μm]	0.46	0.55

## Fluid Handling Components

Product	Unit	A14 (-325)	CL3000 (FG/SG)	CL2500 (SG)	A152 SG	CT1200 (SG)	A16 SG	CT3000 SG	CT3000 XLS SG
Al <sub>2</sub> O <sub>3</sub>	[%]	99.8	99.8	99.8	99.8	99.85	99.8	99.7	99.8
Na <sub>2</sub> O	[%]	0.03	0.05	0.06	0.06	0.06	0.07	0.08	<0.01
SiO <sub>2</sub>	[%]	0.02	0.01	0.01	0.03	0.01	0.03	0.03	<0.02
Surface Area	[m <sup>2</sup> /g]	0.55 (0.7)	0.6 (0.9/1.0)	0.95 (1.2)	4.3	1.2 (3.1)	8.9	7.5	7.8
Primary Crystal Size	[μm]	1.9	2.1	1.7	1.2	1.2	0.5	0.5	0.5
FG d50	[μm]	4.9	4.3						
SG d50	[μm]		3.7	3.5	1.2	3.1	0.46	0.55	0.55



# CHEMICAL APPLICATIONS

## Filters and Membranes



Product	Unit	T60/T64	A10 (-325)	HVA (FG)	A3500 (SG)	CL3000 (FG/SG)	A14 (-325)	A16 SG	CT3000 SG	A1000 SG
Al <sub>2</sub> O <sub>3</sub>	[%]	99.5	99.7	99.7	99.8	99.8	99.8	99.8	99.7	99.8
Na <sub>2</sub> O	[%]	0.4	0.08	0.1	0.08	0.05	0.03	0.07	0.08	0.07
SiO <sub>2</sub>	[%]	0.09	0.04	0.01	0.01	0.01	0.02	0.03	0.03	0.03
Surface Area	[m <sup>2</sup> /g]		0.2 (0.5)	0.5 (0.7)	0.5 (1.9)	0.6 (0.9/1.0)	0.55 (0.7)	8.9	7.5	7.6
Primary Crystal Size	[μm]	*	4.5	2.6	2.5	2.1	1.9	0.5	0.5	0.5
FG d50	[μm]	*	7.9	5.1		4.3	4.9			
SG d50	[μm]	*			2.8	3.7		0.46	0.55	0.5

\*d50 from 5 to 5000μm possible

# STRUCTURAL / WEAR APPLICATIONS



## CUTTING TOOLS & PLATES

Alumina is vital for cutting tools and plates, providing exceptional hardness, wear resistance, and thermal stability. Its properties ensure precise cutting performance and durability in high-temperature applications. Almatis reactive aluminas achieve highest sintered densities supporting high hardness and performance of the ceramics.

## BALL BEARINGS

Alumina is ideal for ball bearings, offering exceptional wear resistance, low friction, and high thermal stability. Its lightweight and durable properties enhance performance and longevity in demanding environments. Almatis products support customers in achieving lowest roughness numbers for lowest friction levels.

## GRINDING MEDIA & LINERS

Alumina is an excellent choice for grinding media, providing high density, exceptional hardness, and superior wear resistance. Its uniform structure ensures effective milling and minimizes contamination. Almatis offers cost efficient solutions of highly reactive materials for state of the art grinding media and wear linings.

## BALLISTIC PROTECTION

Alumina is crucial for ballistic protection, offering exceptional hardness, lightweight properties, and high resistance to impact. Its advanced structural integrity makes it ideal for armor applications, ensuring reliable defense against ballistic threats while maintaining optimal mobility for personnel and equipment in critical situations.

## FRICTION DISCS, THREAD GUIDES

Alumina is ideal for thread guides, providing excellent wear resistance, low friction, and thermal stability. Its durability ensures smooth operation and precise alignment in textile machinery, enhancing efficiency and extending the lifespan of components. Almatis aluminas achieve highest fired densities and excellent grindability for highest smoothness of surface.

# STRUCTURAL APPLICATIONS



## Cutting tools / Ball Bearings

Product	Unit	A152 SG	CT1200 (SG)	A16 SG	CT3000 SG
Green Density	[g/cm <sup>3</sup> ]	2.34		2.17	2.25
Al <sub>2</sub> O <sub>3</sub>	[%]	99.8	99.85	99.8	99.7
Na <sub>2</sub> O	[%]	0.06	0.06	0.07	0.08
SiO <sub>2</sub>	[%]	0.03	0.01	0.03	0.03
Surface Area	[m <sup>2</sup> /g]	4.3	1.2 (3.1)	8.9	7.5
Primary Crystal Size	[μm]	1.2	1.2	0.5	0.5
SG d50	[μm]	1.2	3.1	0.46	0.55

## Grinding Media / Linings

Product	Unit	A10 (-325)	CT700	CT800 (FG/SG)	CT1000	A16 SG	CT3000 SG
Al <sub>2</sub> O <sub>3</sub>	[%]	99.7	99.7	99.7	99.5	99.8	99.7
Na <sub>2</sub> O	[%]	0.08	0.12	0.12	0.1	0.07	0.08
SiO <sub>2</sub>	[%]	0.04	0.01	0.01	0.02	0.03	0.03
Surface Area	[m <sup>2</sup> /g]	0.2 (0.5)	0.65	0.7 (0.9/1.0)	1.1	8.9	7.5
Primary Crystal Size	[μm]	4.5	2	1.9	1.6	0.5	0.5
FG d50	[μm]	7.9		4.0			
SG d50	[μm]			3.4		0.46	0.55



# STRUCTURAL APPLICATIONS



## Ballistic Protection

Product	Unit	CT800 (FG/SG)	CT1000	A152 SG	CT1200 (SG)	A16 SG	CT3000 SG
Green Density	[g/cm <sup>3</sup> ]	2.28		2.34		2.17	2.25
Al <sub>2</sub> O <sub>3</sub>	[%]	99.7	99.5	99.8	99.85	99.8	99.7
Na <sub>2</sub> O	[%]	0.12	0.1	0.06	0.06	0.07	0.08
SiO <sub>2</sub>	[%]	0.01	0.02	0.03	0.01	0.03	0.03
Surface Area	[m <sup>2</sup> /g]	0.7 (0.9/1.0)	1.1	4.3	1.2 (3.1)	8.9	7.5
Primary Crystal Size	[μm]	1.9	1.6	1.2	1.2	0.5	0.5
FG d50	[μm]	4.0					
SG d50	[μm]	3.4		1.2	1.2	0.46	0.55

## Friction Discs / Threat Guides

Product	Unit	A10 (-325)	CL3000 (FG/SG)	CL2500 (SG)	A152 SG	CT1200 (SG)	A16 SG	CT3000 SG
Al <sub>2</sub> O <sub>3</sub>	[%]	99.7	99.8	99.8	99.8	99.85	99.8	99.7
Na <sub>2</sub> O	[%]	0.08	0.05	0.06	0.06	0.06	0.07	0.08
SiO <sub>2</sub>	[%]	0.04	0.01	0.01	0.03	0.01	0.03	0.03
Surface Area	[m <sup>2</sup> /g]	0.2 (0.5)	0.6 (0.9/1.0)	0.95 (1.2)	4.3	1.2 (3.1)	8.9	7.5
Primary Crystal Size	[μm]	4.5	2.1	1.7	1.2	1.2	0.5	0.5
FG d50	[μm]	7.9	4.3					
SG d50	[μm]		3.7	3.5	1.2	3.1	0.46	0.55

# THERMAL APPLICATIONS



## CERAMIC ROLLER

Alumina is ideal for ceramic rollers in roller hearth furnaces, offering exceptional wear resistance, high strength, and thermal stability. Its durable properties ensure smooth operation and reliable support during high-temperature processes, enhancing efficiency and longevity in the firing of ceramic products. Almatis offers coarse aggregates, fine and super fine aluminas for ideal mullite formation and highest strength during operation.

## KILN FURNITURE

Alumina is essential for kiln furniture, providing exceptional strength, thermal stability, and resistance to deformation at high temperatures. Its properties ensure reliable support during firing processes, maximizing efficiency and minimizing contamination in the production of ceramics or raw materials for batteries. Almatis offers a broad portfolio of products covering all components necessary for kiln furniture recipe.

## THERMAL ENERGY STORAGE

Alumina is an excellent material for thermal energy storage, offering high thermal conductivity, stability, and durability. Its ability to efficiently absorb and release heat makes it ideal for enhancing energy efficiency in industrial processes. Almatis products support performance of energy storage equipment to optimize renewable energy systems.

## THERMOCOUPLE AND PROTECTION TUBES

Alumina is ideal for thermocouple tubes, offering excellent thermal insulation, high temperature resistance, and chemical stability. Its durable properties ensure accurate temperature measurement and protection for thermocouples in harsh environments. Almatis offers several solutions including mono, bi or multi modal products for high stability during extrusion and firing process.

## FOUNDRY *(Riser Tubes, Dosing Tubes, Nozzles)*

Alumina enhances aluminum titanate tubes, providing exceptional thermal shock resistance, mechanical strength, and durability. Ideal for the foundry industry, these tubes ensure reliable performance in high-temperature applications, promoting efficient molten metal handling and reducing wear in challenging environments. Almatis products' purity and reactivity fosters aluminiumtitanate formation for efficient processing.

# THERMAL APPLICATIONS



## Ceramic Roller / Kiln Furniture

Product	Unit	T60/T64	WRA (FG)	A2 (-325 CR)	CT800 (FG/SG)	CTC20	A3000 FL	A152 SG	CT1200 (SG)	CT3000 SG	A1000 SG	RG4000
Al <sub>2</sub> O <sub>3</sub>	[%]	99.5	99.7	99.6	99.7	99.7	99.8	99.8	99.85	99.7	99.8	99.8
Na <sub>2</sub> O	[%]	0.4	0.12	0.25	0.12	0.12	0.07	0.06	0.06	0.08	0.07	0.08
SiO <sub>2</sub>	[%]	0.09	0.01	0.02	0.01	0.03	0.02	0.03	0.01	0.03	0.03	0.03
Surface Area	[m <sup>2</sup> /g]		0.6 (0.85)	0.5 (0.7)	0.7 (0.9/1.0)	2.1	2.5	4.3	1.2 (3.1)	7.5	7.6	7.2
Primary Crystal Size	[μm]	*	2.4	2.4	1.9	1.9		1.2	1.2	0.5	0.5	0.5
FG d50	[μm]	*	4.4	5.2	4.0							
SG d50	[μm]	*			3.4	1.9	2.6	1.2	3.1	0.55	0.5	0.6

## Thermal Energy Storage

Product	Unit	T60/T64	A2 (-325 CR)	WRA (FG)	CT9 (FG)
Al <sub>2</sub> O <sub>3</sub>	[%]	99.5	99.6	99.7	99.5
Na <sub>2</sub> O	[%]	0.4	0.25	0.12	0.15
SiO <sub>2</sub>	[%]	0.09	0.02	0.01	0.03
Surface Area	[m <sup>2</sup> /g]		0.5 (0.7)	0.6 (0.85)	0.7
Primary Crystal Size	[μm]	*	2.4	2.4	2.5
FG d50	[μm]	*	5.2	4.4	4.0

\*d50 from 5 to 5000μm possible



# THERMAL APPLICATIONS



## Thermocouple and Protection Tubes

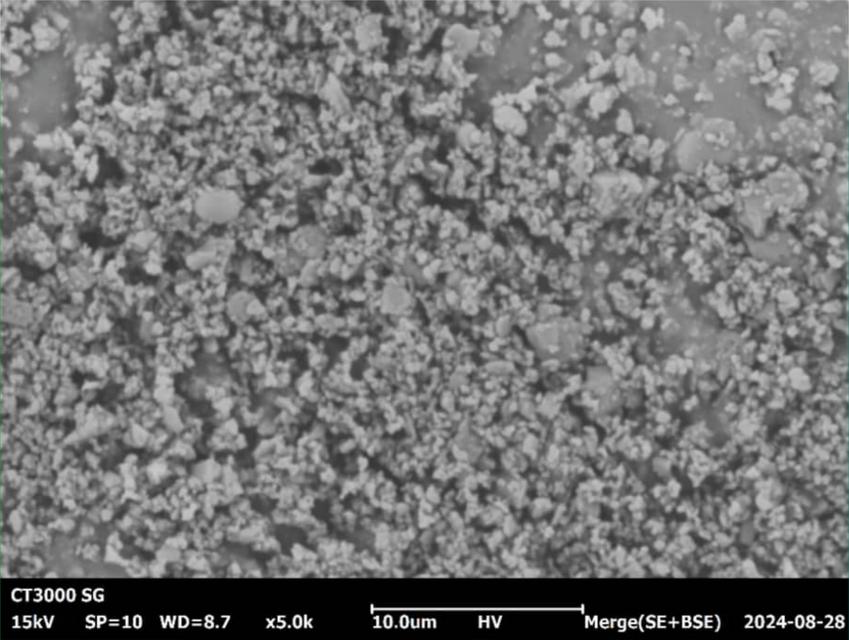
Product	Unit	T60/T64	CL3000 (FG/SG)	A14 (-325 CR)	A152 SG	CT1200 (SG)	A15 SG	CT530 SG	A16 SG	CT3000 SG
Green Density	[g/cm <sup>3</sup> ]		2.28	2.31	2.34		2.55	2.6	2.17	2.25
Al <sub>2</sub> O <sub>3</sub>	[%]	99.5	99.8	99.8	99.8	99.85	99.8	99.7	99.8	99.7
Na <sub>2</sub> O	[%]	0.4	0.05	0.03	0.06	0.06	0.07	0.09	0.07	0.08
SiO <sub>2</sub>	[%]	0.09	0.01	0.02	0.03	0.01	0.02	0.03	0.03	0.03
Surface Area	[m <sup>2</sup> /g]		0.6 (0.9/1.0)	0.55 (0.7)	4.3	1.2 (3.1)	4.9	4.9	8.9	7.5
Primary Crystal Size	[μm]	*	2.1	1.9	1.2	1.2			0.5	0.5
FG d50	[μm]		4.3	4.9						
SG d50	[μm]		3.7		1.2	1.2	1.8	1.4	0.46	0.55

## Foundry

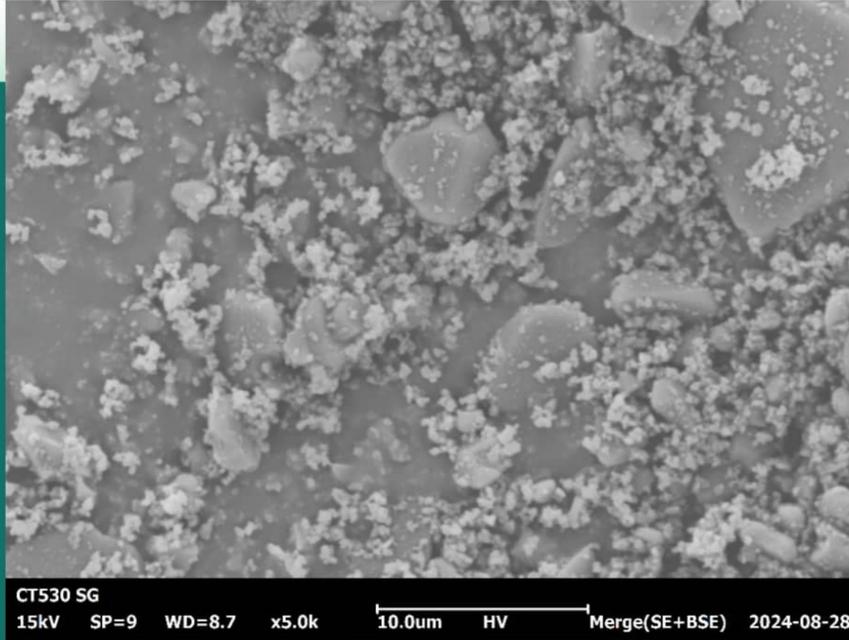
Product	Unit	CT3000 SG	A1000 SG	RG4000
Al <sub>2</sub> O <sub>3</sub>	[%]	99.7	99.8	99.8
Na <sub>2</sub> O	[%]	0.08	0.07	0.08
SiO <sub>2</sub>	[%]	0.03	0.03	0.03
Surface Area	[m <sup>2</sup> /g]	7.5	7.6	7.2
Primary Crystal Size	[μm]	0.5	0.5	0.5
SG d50	[μm]	0.55	0.5	0.6

\*d50 from 5 to 5000μm possible

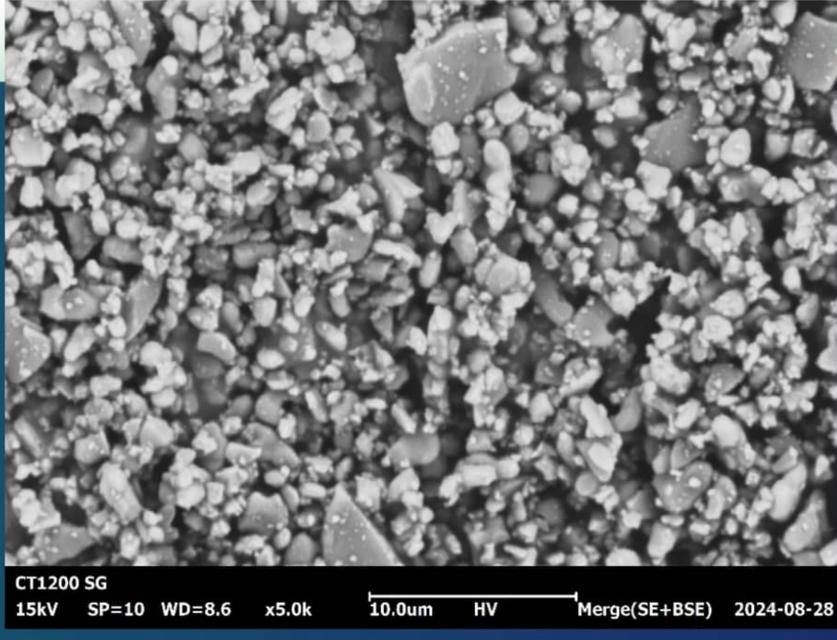
# SEM IMAGES



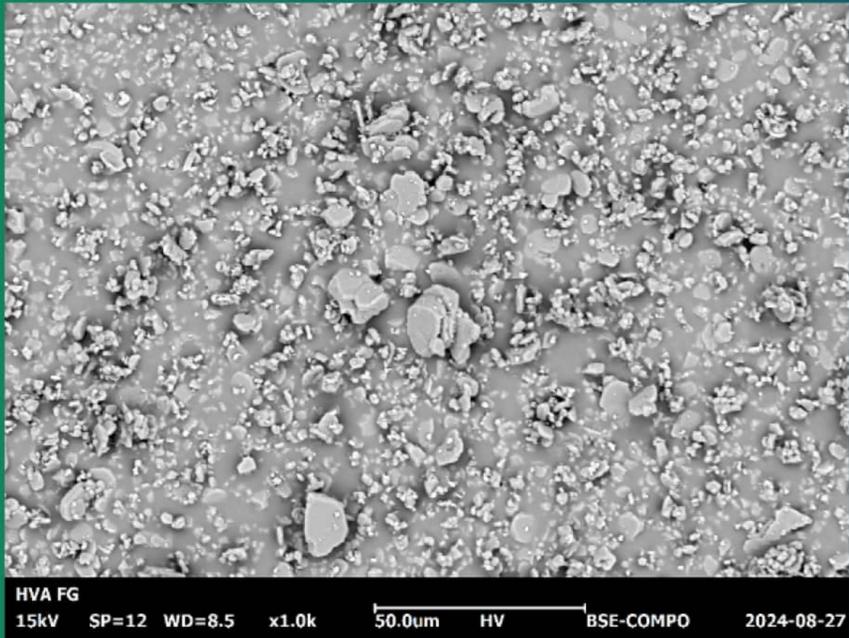
CT3000XLS SG (5k x)



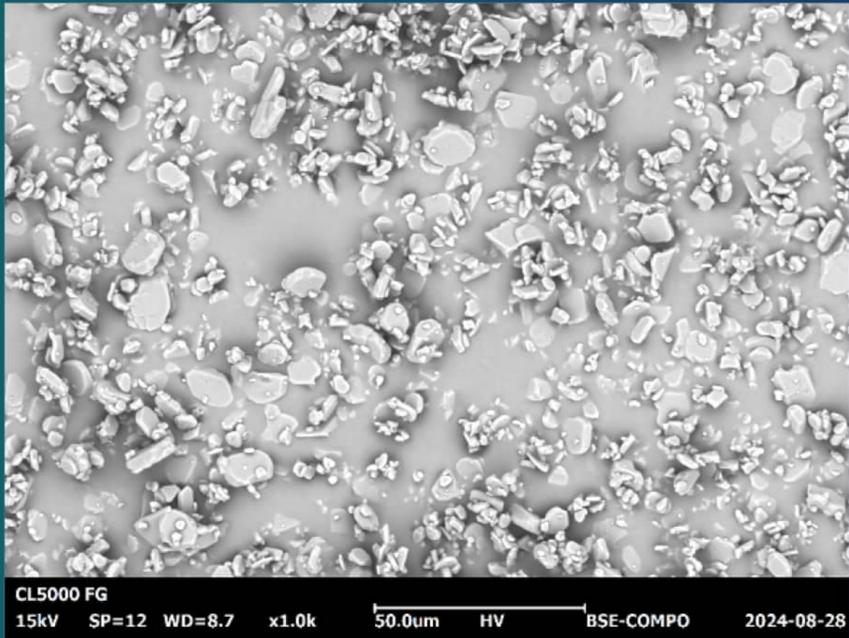
CT530 SG (5k x)



CT1200 SG (5k x)



HVA FG (1k x)



CL5000 FG (1k x)

# ALUMINA FOR CERAMICS / APPLICATION MATRIX



		Normal soda	Normal Soda <0.4% Na2O	Intermediate Soda <0.15% Na2O											Low Soda <0.08% Na2O			Xtra Low Soda <0.03% Na2O			Ultra Low Soda <0.01% Na2O			Cement						
AVAILABLE SIZES		UG, -325	3x6, 14x28, 28x48, -48, -65, -325 (Li), -20µm	UG, FG, SG	UG, FG	UG, -325 (CR)	UG	UG, FG, SG	SG, Ultra, SDP	SG	SG	SG	SG	SG	UG, SG (NM)	UG, SG	UG, FG, -325, SG	UG, FG	UG, FG, SG	UG, -325	UG, SG	UG, SG	SG, Ultra, SDP	3x6 (Tabal.), -325	UG, SG	UG, SG	UG, SG	SG, Ultra	CA-14 M	CA-25 R
PRODUCT		A13	P730	T60/T64	HVA / A3500	WRA	A2	CT700	CT800	CT3000 / A16	A1000 /RG4000	A3000 FI	CTC20	CT530	A15	CTT200 / A152	CL2500	CL3000 / A14	CTT9	CL5000	A10	CTT200 XLS	CL2500 XLS	CT3000 XLS	T60/T64 XLS	CTT200 ULS	CL2500 ULS	CL3000 ULS	CT3000 ULS	
APPLICATIONS																														
ELECTRONIC	Electronic Substrates								▲							▲	▲		▲											
	Semiconductor / Wafer Processing Equipment								▲							▲						▲		▲						▲
	Circuit Breaker / metallized cylinder																	▲		▲										
	Antenna components									▲						▲						▲		▲						▲
	Resistor Rods							▲	▲								▲													
	Spark Plugs				▲			▲	▲								▲					▲								
CHEMICAL	Catalytic Substrates				▲	▲	▲		▲	▲																				
	Catalyst Carrier	▲	▲						▲							▲	▲	▲				▲	▲	▲		▲	▲	▲	▲	▲
	Filters and Membranes			▲	▲				▲	▲								▲			▲									
	Fluid Handling Components															▲	▲	▲						▲						
	Sensors									▲														▲						
	Labware									▲														▲					▲	

# ALUMINA FOR CERAMICS / APPLICATION MATRIX



	Normal soda	Normal Soda <0.4% Na2O	Intermediate Soda <0.15% Na2O													Low Soda <0.08% Na2O			Xtra Low Soda <0.03% Na2O		Ultra Low Soda <0.01% Na2O		Cement												
AVAILABLE SIZES		UG, -325	3x6, 14x28, 28x48, -48, -65, -325 (Li), -20µm	UG, FG, SG	UG, FG	UG, -325 (CR)	UG	UG, FG, SG	UG	SG, Ultra, SDP	SG	SG	SG	SG	SG	UG, SG (NM)	UG, SG	UG, FG, -325, SG	UG, FG	UG, FG, SG	UG, -325	UG, SG	UG, SG	SG, Ultra, SDP	3x6 (Tabal.), -325	UG, SG	UG, SG	UG, SG	SG, Ultra	CA-14 M	CA-25 R				
PRODUCT		A13	P730	T60/T64	HVA / A3500	WRA	A2	CT700	CT800	CT1000	CT3000 / A16	A1000 / RG4000	A3000 FI	CTC20	CT530	A15	CT1200 / A152	CL2500	CL3000 / A14	CT19	CL5000	A10	CT1200 XLS	CL2500 XLS	CT3000 XLS	T60/T64 XLS	CT1200 ULS	CL2500 ULS	CL3000 ULS	CT3000 ULS					
APPLICATIONS									▲	▲																									
STRUCTURAL	Grinding Media / Linings																																		
	Ball bearings										▲						▲																		
	Ballistic Protection									▲	▲						▲						▲		▲										
	Friction discs, threat guides										▲						▲						▲		▲										
	Cutting tools / blades										▲						▲									▲									
THERMAL	Ceramic Rollers		▲						▲		▲	▲		▲												▲									
	Kiln furniture			▲		▲		▲			▲	▲	▲	▲												▲									
	Thermocouple Tubes			▲							▲				▲	▲	▲																		
	Thermal Energy storage			▲		▲	▲																												
Foundry (riser / dosing tubes)										▲	▲																								

# ALMATIS GLOBAL FOOTPRINT

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