



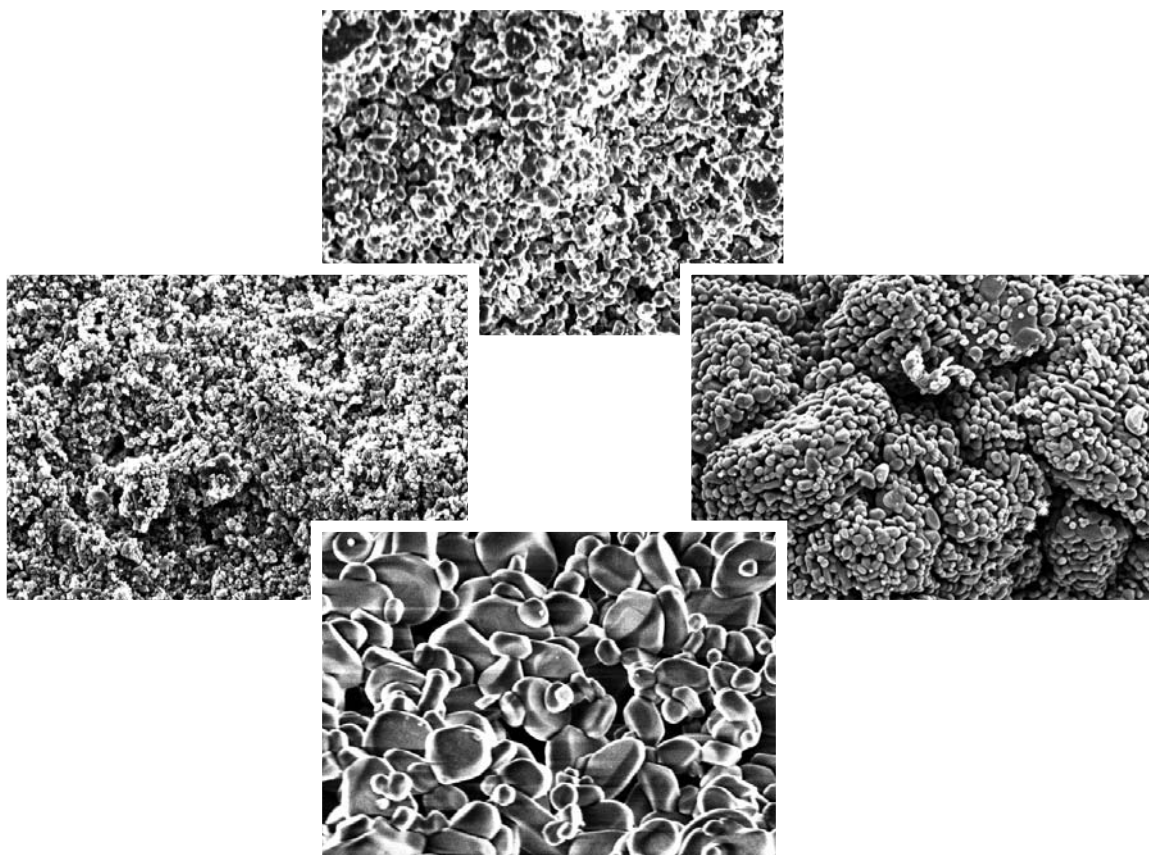
ALMATIS

PREMIUM ALUMINA



European Regional Product Data

Reactive and Calcined Aluminas for the Ceramic Industry



Think alumina, think Almatris.

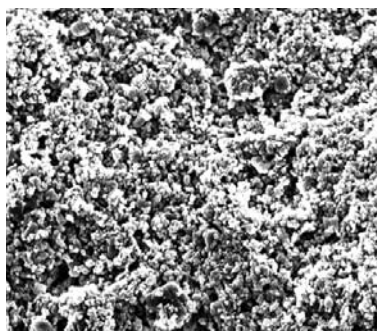
RP-EU/RCP/006/R06/0608/MSDS 387



Thermally Reactive Aluminas for Ceramics

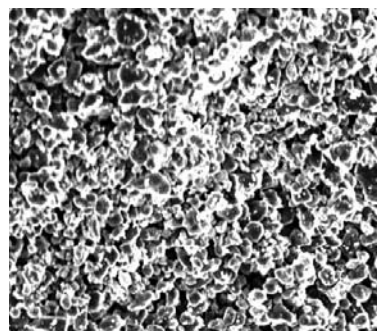
unground					CT 1200					
Properties / method	Unit				typical	Min	Max			
Specific Surface Area / BET	[m ² /g]				1.2	1.0	1.4			
Particle Size / sieve > 63 µm	[%]				75.0	50.0	95.0			
Chemical Analysis										
Al ₂ O ₃ by difference	[%]				99.85					
Na ₂ O	[%]				0.06		0.08			
Fe ₂ O ₃	[%]				0.02		0.03			
SiO ₂	[%]				0.01		0.03			
CaO	[%]				0.01		0.03			
superground		CT 3000 SG			CT 1200 SG			CT 530 SG		
Properties / method	Unit	typical	Min	Max	typical	Min	Max	typical	Min	Max
Specific Surface Area / BET	[m ² /g]	7.5	6.5	8.5	3.7	3.0	4.3	4.9	4.0	5.5
Particle Size / D50 Cilas	[µm]	0.5	0.3	0.6	1.3	1.0	1.5	1.5	1.1	1.8
Particle Size / D90 Cilas	[µm]	2.0		3.0	3.2		3.6	4.6	3.8	5.4
Chemical Analysis										
Na ₂ O	[%]	0.08		0.10	0.06		0.08	0.09		0.10
Fe ₂ O ₃	[%]	0.02		0.03	0.02		0.03	0.02		0.03
SiO ₂	[%]	0.03		0.07	0.05		0.08	0.03		0.07
CaO	[%]	0.02		0.03	0.04		0.05	0.02		0.03
MgO	[%]	0.07	0.05	0.10	0.05	0.05	0.10	0.04	0.02	0.06
Ceramic Properties										
Press Density / 90 MPa	[g/cm ³]	2.25			2.38			2.60		
Fired Density	[g/cm ³]	3.90	3.88		3.92	3.86		3.90	3.86	
Firing Temperature/1h soak time	[°C]		at 1540				at 1670			
Shrinkage	[%]	16.8			15.6			13.0		

The typical product properties are based upon the actual averages from production data. The min-max data show our standard product specification data for these products.



2µm □

CT 3000 SG



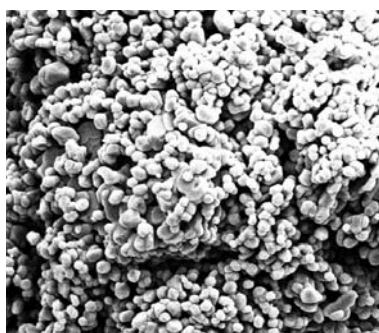
2µm □

CT 1200 SG

Calcined Aluminas for Ceramics

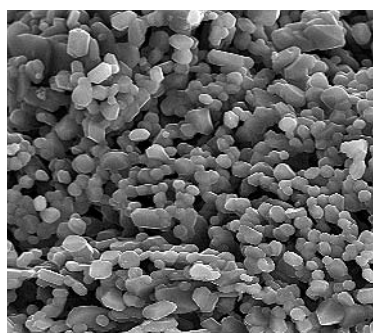
unground		CT 700			CT 800			WRA		
Properties	Unit	typical	Min	Max	typical	Min	Max	typical	Min	Max
Specific Surface Area / BET	[m ² /g]	0.65	0.6	0.8	0.70	0.65	0.85	0.60	0.50	0.70
Particle Size / sieve > 63 µm	[%]	70.0	40.0	80.0	70.0	50.0	95.0	70.0	50.0	95.0
Primary Crystal Size / D50 Cilas Compacité	[µm]	2.0	1.5	2.2	1.9	1.5	2.1	2.3		
Press Density / Compacité	[g/cm ³]	2.30	2.25	2.35	2.30	2.24	2.34			
Chemical Analysis										
Al ₂ O ₃ by difference	[%]	99.7			99.7			99.7		
Na ₂ O	[%]	0.12		0.15	0.12		0.15	0.12		0.15
Fe ₂ O ₃	[%]	0.02		0.03	0.02		0.04	0.02		0.04
SiO ₂	[%]	0.01		0.03	0.01		0.03	0.01		0.03
CaO	[%]	0.03		0.045	0.02		0.06	0.03		0.06
fineground					CT 800 FG			WRA FG		
Properties	Unit				typical	Min	Max	typical	Min	Max
Specific Surface Area / BET	[m ² /g]				0.90	0.70	1.20	0.85	0.60	1.10
Particle Size / D50 Cilas	[µm]				3.5	2.5	5.0	4.0	2.4	5.4
Particle Size / wet sieve > 45 µm	[%]				0.1		3.0	0.5		3.0
SiO ₂	[%]				0.02		0.04	0.02		0.04
superground					CT 800 SG					
Properties	Unit				typical	Min	Max			
Specific Surface Area / BET	[m ² /g]				1.00	0.80	1.50			
Particle Size / D50 Cilas	[µm]				3.4	2.5	4.0			
Particle Size / Cilas > 20 µm	[%]				0.1		1.0			
SiO ₂	[%]				0.02		0.04			

The typical product properties are based upon the actual averages from production data. The min-max data show our standard product specification data for these products.



2µm □

CT 800



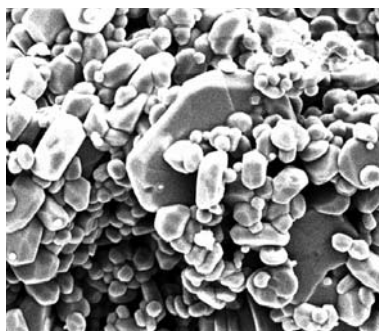
2µm □

WRA

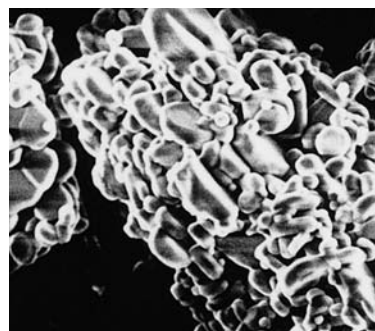
Calcined Aluminas for Ceramics

unground		H VA			CT 19		
Properties	Unit	typical	Min	Max	typical	Min	Max
Specific Surface Area / BET	[m ² /g]	0.50	0.40	0.55	0.40	0.20	0.45
Particle Size / sieve > 63 µm	[%]	70.0	50.0	95.0	70.0	50.0	95.0
Primary Crystal Size / D50 Cilas Compacité	[µm]	2.7	2.1	3.0	4.0		
Chemical Analysis							
Al ₂ O ₃ by difference	[%]	99.7			99.8		
Na ₂ O	[%]	0.10		0.15	0.08		0.10
Fe ₂ O ₃	[%]	0.02		0.03	0.02		0.04
SiO ₂	[%]	0.01		0.02	0.01		0.05
CaO	[%]	0.02		0.03	0.01		0.03
fineground		H VA FG			CT 19 FG		
Properties	Unit	typical	Min	Max	typical	Min	Max
Specific Surface Area / BET	[m ² /g]	0.70	0.55	0.85	0.60	0.40	0.80
Particle Size / D50 Cilas	[µm]	4.8	4.0	5.5	5.5	4.0	7.5
Particle Size / wet sieve > 45 µm	[%]	0.6		3.0	1.0		3.0
SiO ₂	[%]	0.02		0.03	0.02		0.05

The typical product properties are based upon the actual averages from production data.
The min-max data show our standard product specification data for these products.



HVA



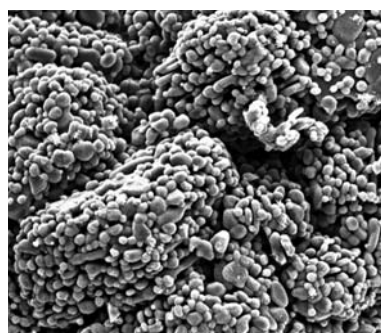
CT 19



Low Soda Aluminas for Ceramics

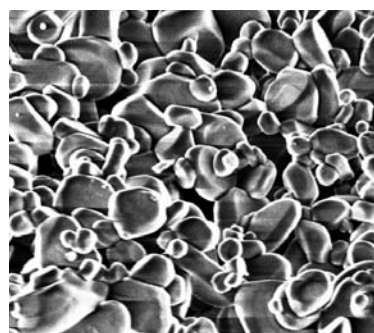
unground		CL 2500			CL 3000			CL 4400			CL 5000		
Properties	Unit	typical	Min	Max	typical	Min	Max	typical	Min	Max	typical	Min	Max
Specific Surface Area/BET	[m ² /g]	0.95	0.85	1.00	0.60	0.55	0.70	0.35	0.25	0.40	0.30	0.20	0.35
Particle Size/sieve > 63 µm	[%]	80.0	50.0	95.0	80.0	50.0	95.0	80.0	50.0	95.0	70.0	50	95
Primary Crystal Size / D50 Cilas Compacité	[µm]	1.7	1.3	2.2	2.2	1.8	2.6	4.1	2.6	4.6	4.3	2.9	5.1
Press Density/Compacité	[g/cm ³]	2.22	2.18	2.24	2.28	2.27	2.31	2.30	2.25	2.35	2.38	2.35	2.42
Chemical Analysis													
Al ₂ O ₃ by difference	[%]	99.8			99.8			99.8			99.8		
Na ₂ O	[%]	0.06		0.08	0.05		0.08	0.06		0.08	0.06		0.10
Fe ₂ O ₃	[%]	0.02		0.03	0.02		0.03	0.02		0.04	0.02		0.03
SiO ₂	[%]	0.01		0.03	0.01		0.03	0.02		0.05	0.02		0.05
CaO	[%]	0.01		0.03	0.01		0.03	0.01		0.03	0.01		0.03
B ₂ O ₃	[%]	0.01		0.02	0.01		0.03	0.03		0.07	0.01		0.04
fineground					CL 3000 FG			CL 4400 FG					
Properties	Unit				typical	Min	Max	typical	Min	Max			
Specific Surface Area/BET	[m ² /g]				0.90	0.75	1.20	0.60	0.40	0.65			
Particle Size/D50 Cilas	[µm]				4.2	3.6	4.8	5.2	3.8	7.7			
Particle Size/wet sieve>45µm	[%]				0.5		3.0	1.8		3.0			
SiO ₂	[%]				0.01		0.03	0.02		0.05			
superground					CL 3000 SG								
Properties	Unit				typical	Min	Max						
Specific Surface Area/BET	[m ² /g]				1.00	0.80	1.15						
Particle Size / D50 Cilas	[µm]				4.0	3.2	4.6						
Particle Size/wet sieve >20 µm	[%]				0.1		3.0						
SiO ₂	[%]				0.02		0.04						

The typical product properties are based upon the actual averages from production data.
The min-max data show our standard product specification data for these products.



2µm □



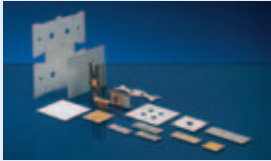

CL 2500



2µm □

CL 5000



Field of Application	Ceramic Properties	Alumina Grades and Key Properties
Advanced and Wear Resistant Ceramics parts with > 99% Al ₂ O ₃ parts with 85 – 99% Al ₂ O ₃	<ul style="list-style-type: none"> • Uniform, dense ceramic matrix • Defined surface properties • Excellent wear and abrasion resistance 	CT 3000 SG, CT 1200 SG CT 800, WRA, CL 2500
		<ul style="list-style-type: none"> • Fine controlled particle size distribution • High thermal reactivity • Good grindability • High chemical purity 99.8 – 99.9% Al₂O₃
Electrical Insulators 90 – 98% Al ₂ O ₃ Spark Plugs High Tension Insulators	<ul style="list-style-type: none"> • High dielectric strength • High mechanical strength • High thermal conductivity 	CL 3000, CL 5000, CT 700 H VA FG, CT 19 FG
		<ul style="list-style-type: none"> • Consistent shrinkage • Very low Na₂O • Good machining properties • Alpha-alumina
Electronic Components / Substrates 99.5% Al ₂ O ₃ Ceramics 70 – 99% Al ₂ O ₃ Ceramics	<ul style="list-style-type: none"> • High electrical resistance • Uniform dense ceramic matrix • High mechanical strength 	CT 3000 SG, CT 1200 SG CL 2500, CL 3000, CL 5000
		<ul style="list-style-type: none"> • Very low Na₂O < 0.06% • Consistent shrinkage • High thermal reactivity
Porous Ceramic & Catalyst Carriers High Alumina Ceramics Aluminosilicate Ceramics	<ul style="list-style-type: none"> • Defined pore structure • Good mechanical and impact strength 	CL 3000 FG H VA FG, CT 19 FG
		<ul style="list-style-type: none"> • Defined particle size distribution • Good ceramic reactivity • Consistent shrinkage



Contacts for sales, technical information and application assistance

Headquarters

Almatis GmbH
 Lyoner Straße 9
 60528 Frankfurt/Germany

Phone **49 69 957 341 0**
 Fax **49 69 957 341 13**

info@almatis.com
www.almatis.com

Almatis GmbH

Giulinistrasse 2
 67065 Ludwigshafen
 Germany

Phone **49 621 5707 0**
 Fax **49 621 5707 130**

Almatis B.V.

Theemsweg 30
 3197KM Botlek RT
 The Netherlands

Phone **31 181 2701 00**
 Fax **31 181 2178 53**

MSDS 387