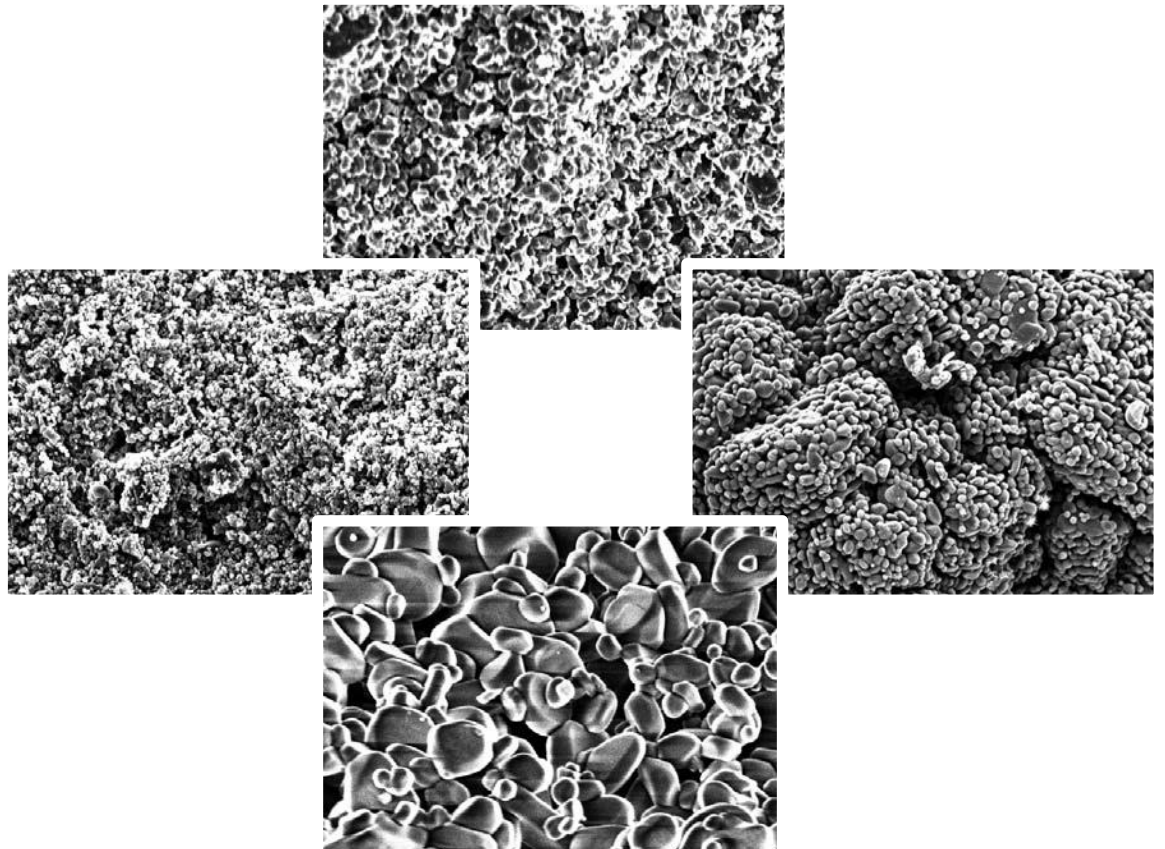




Reactive and Calcined Aluminas for the Ceramic Industry

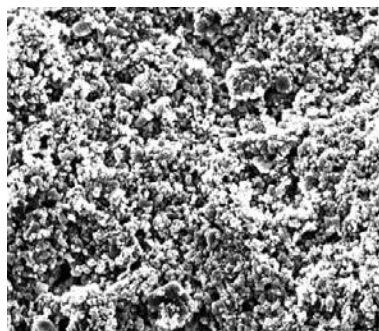




Thermally Reactive Aluminas for Ceramics

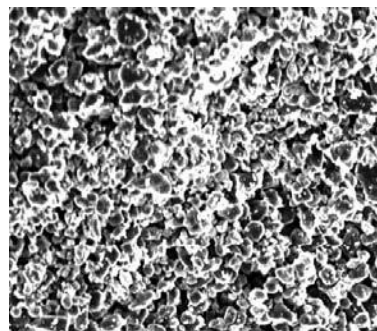
unground					CT 1200					
Properties / method	Unit				typical	Min	Max			
Specific Surface Area / BET	[m ² /g]				1.2	1.0	1.4			
Particle Size / sieve > 63 μm	[%]				75.0	50.0	95.0			
Chemical Analysis										
Al ₂ O ₃ by difference	[%]				99.85					
Na ₂ O	[%]				0.06		0.08			
Fe ₂ O ₃	[%]				0.02		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	3.1	2.8	4.0	4.9	4.0	5.5
Particle Size / D50 Gilas	[μm]	0.5	0.3	0.6	1.3	1.0	1.5	1.5	1.1	1.8
Particle Size / D90 Gilas	[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	0.03		0.05
MgO	[%]	0.07	0.05	0.10	0.07	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]		±1540				±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

CT3000 SG



2μm

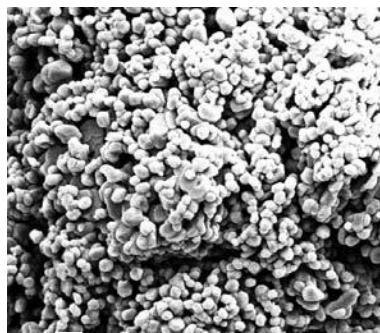
CT1200 SG



Calcined Aluminas for Ceramics

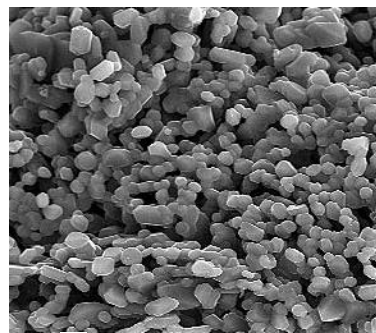
unground		CT 700			CT 800			WRA		
Properties	Unit	typical	Min	Max	typical	Min	Max	typical	Min	Max
Specific Surface Area / BET	[m ² /g]	0.65	0.6	0.8	0.70	0.65	0.85	0.60	0.50	0.70
Particle Size / sieve > 63 µm	[%]	70.0	40.0	80.0	70.0	50.0	95.0	70.0	50.0	95.0
Primary Crystal Size / D50 Cilas Compacité	[µm]	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

CT800



2µm

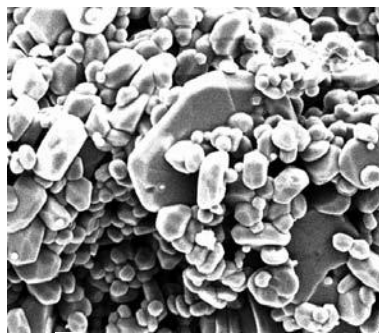
WRA



Calcined Aluminas for Ceramics

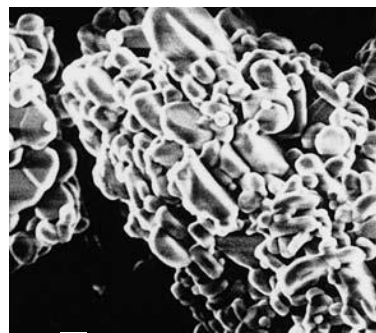
unground		HVA			CT 19		
Properties	Unit	typical	Min	Max	typical	Min	Max
Specific Surface Area / BET	[m ² /g]	0.50	0.40	0.55	0.40	0.20	0.45
Particle Size / sieve > 63 μm	[%]	70.0	50.0	95.0	70.0	50.0	95.0
Primary Crystal Size / D50 Cilas Compacité	[μm]	2.7	2.1	3.0	4.0		
Chemical Analysis							
Al ₂ O 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	[%]	0.03		0.05	0.03		0.05
fineground		HVA 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.



2μm □

HVA



2μm □

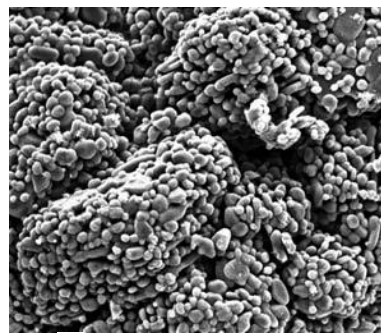
CT19



Low Soda Aluminas for Ceramics

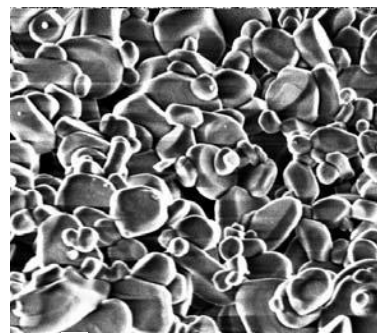
unground		CL 2500			CL 3000			CL 5000		
Properties	Unit	typical	Min	Max	typical	Min	Max	typical	Min	Max
Specific Surface Area/BET	[m ² /g]	0.95	0.85	1.00	0.60	0.55	0.70	0.34	0.30	0.37
Particle Size/sieve > 63 μm	[%]	80.0	50.0	95.0	80.0	50.0	95.0	70.0	50	95
Primary Crystal Size / D50 Cilas Compacité	[μm]	1.7	1.3	2.2	2.2	1.8	2.6	3.8	3.4	4.8
Press Density/Compacité	[g/cm ³]	2.22	2.18	2.24	2.28	2.27	2.31	2.38	2.35	2.42
Chemical Analysis										
Al ₂ O ₃ by difference	[%]	99.8			99.8			99.8		
Na ₂ O	[%]	0.06		0.08	0.05		0.08	0.06		0.10
Fe ₂ O ₃	[%]	0.02		0.03	0.02		0.03	0.02		0.03
SiO ₂	[%]	0.01		0.03	0.01		0.03	0.02		0.05
CaO	[%]	0.01		0.03	0.01		0.03	0.01		0.03
B ₂ O ₃	[%]	0.01		0.02	0.01		0.03	0.01		0.04
fineground					CL 3000 FG			CL 5000 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
Partide Size/wet sieve>45μm	[%]				0.5		3.0	1.8		3.0
SiO ₂	[%]				0.01		0.03	0.02		0.05
superground		CL 2500 SG			CL 3000 SG					
Properties	Unit	typical	Min	Max	typical	Min	Max			
Specific Surface Area/BET	[m ² /g]	1.2	0.9	1.6	1.00	0.80	1.15			
Particle Size / D50 Cilas	[μm]	3.5	3.3	3.8	4.0	3.2	4.6			
Partide Size/wet sieve >20 μm	[%]	2.0	0	3.0	0.1		3.0			
SiO ₂	[%]	0.02	0	0.04	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





CL2500



2μm

CL5000



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 HVA 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 HVA FG, CT 19 FG
		<ul style="list-style-type: none"> • Defined particle size distribution • Good ceramic reactivity • Consistent shrinkage



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