



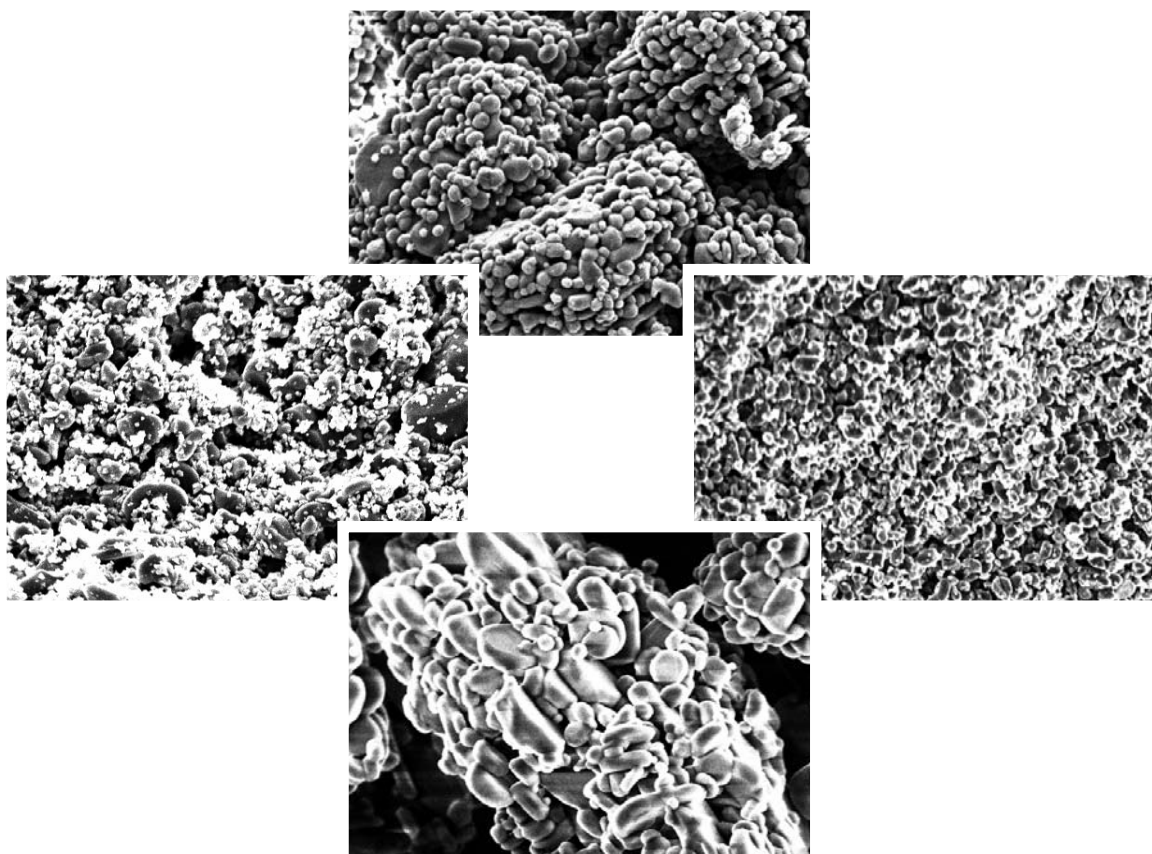
ALMATIS

PREMIUM ALUMINA



European Regional Product Data

Calcined and Reactive Aluminas for Refractories



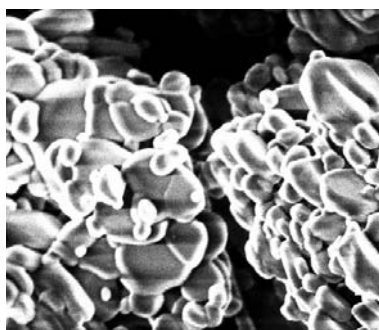
Think alumina, think Almatris.

RP-EU/RCP/007/R06/0608/MSDS 387/1000



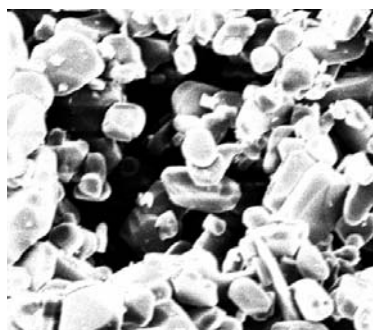
Calcined Aluminas for Refractories

unground					CT 19			CT 800					
Properties / method	Unit	typical	Min	Max	typical	Min	Max	typical	Min	Max	typical	Min	Max
Specific Surface Area / BET	[m ² /g]				0.40	0.20	0.45	0.70	0.65	0.85			
Particle Size / sieve > 63 µm	[%]				70.0	50.0	95.0	70.0	50.0	95.0			
Chemical Analysis													
Al ₂ O ₃	[%]				99.8			99.7					
Na ₂ O	[%]				0.08		0.10	0.12		0.15			
Fe ₂ O ₃	[%]				0.02		0.04	0.02		0.04			
SiO ₂	[%]				0.01		0.05	0.01		0.03			
CaO	[%]				0.01		0.03	0.02		0.06			
ground		CT 9 G											
Specific Surface Area / BET	[m ² /g]	0.70											
Particle Size / sieve > 63 µm	[%]	1.0		3.0									
Chemical Analysis													
Al ₂ O ₃	[%]	99.5											
Na ₂ O	[%]	0.15		0.30									
Fe ₂ O ₃	[%]	0.04		0.06									
SiO ₂	[%]	0.03		0.06									
CaO	[%]	0.02											
fineground		CT 9 FG			CT 19 FG			CT 800 FG					
Specific Surface Area / BET	[m ² /g]	0.80			0.60	0.40	0.80	0.90	0.70	1.20			
Particle Size / D50 Cilas	[µm]	5.0	2.0	7.0	5.5	4.0	7.5	3.5	2.5	5.0			
Particle Size / wet sieve > 45 µm	[%]	1.5		3.0	1.0		3.0	0.1		3.0			
Fe ₂ O ₃	[%]	0.04		0.06	0.02		0.03	0.02		0.04			
SiO ₂	[%]	0.03		0.06	0.02		0.05	0.02		0.04			
superground								CT 800 SG			CT 10 SG		
Specific Surface Area / BET	[m ² /g]							1.0	0.80	1.50	13.0		
Particle Size / D50 Cilas	[µm]							3.4	2.5	4.0	3.0		
Particle Size / Cilas > 20 µm	[%]							0.1		1.0	2.0		5.0
Fe ₂ O ₃	[%]							0.02		0.04	0.03		0.04
SiO ₂	[%]							0.02		0.04	0.01		0.05
Na ₂ O	[%]							0.12		0.15	0.4		0.5



2µm □

CT 19



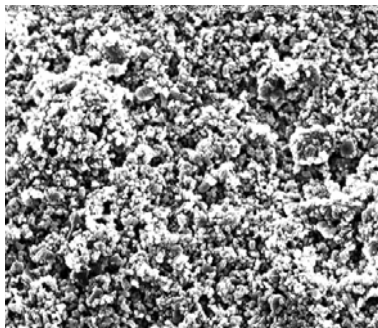
2µm □

CT 19 FG

Reactive Aluminas for High Performance Refractories

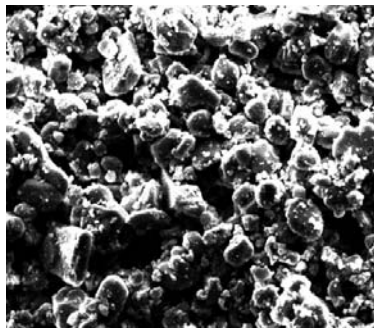
		RG 4000			CTC 20			CTC 22			CL 370		
Properties / method	Unit	typical	Min.	Max.	typical	Min.	Max.	typical	Min.	Max.	typical	Min.	Max.
Specific Surface Area / BET	[m ² /g]	7.2	6.0	9.5	2.1	1.5	3.0	2.7	2.0	3.5	3.0	2.6	3.4
Particle Size / D50 Cilas	[µm]	0.6	0.4	0.8	1.8	1.4	2.3	1.9	1.4	2.4	2.5	1.8	3.0
Particle Size / D90 Cilas	[µm]	3.0		4.0	4.5		6.0	5.8	3.9	6.3	7.0	5.0	10.0
Grain Size Distribution		mono-modal			mono-modal			bi-modal			bi-modal		
Chemical Analysis													
Al ₂ O ₃	[%]	99.8			99.7			99.7			99.7		
Na ₂ O	[%]	0.08		0.10	0.12		0.20	0.12		0.20	0.10		0.14
Fe ₂ O ₃	[%]	0.02		0.04	0.03		0.05	0.03		0.05	0.03		0.04
SiO ₂	[%]	0.03		0.08	0.03		0.08	0.03		0.08	0.03		0.07
CaO	[%]	0.02			0.02			0.02			0.02		
Physical Properties													
Green Density / 90 MPa	[g/cm ³]	2.18			2.40						2.60		
Fired Density at 1600 °C/1h	[g/cm ³]	3.83			3.20						3.40		

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.



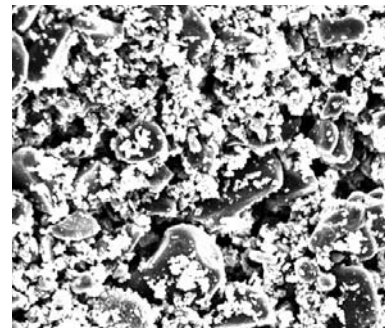
2µm □

RG 4000



2µm □

CTC 20



2µm □

CL 370

Reactive Aluminas for High Performance Refractories

		CTC 30			CTC 40			CTC 50			CTC 55*		
Properties / method	Unit	typical	min.	max.	typical	min.	max.	typical	min.	max.	typical	min.	max.
Specific Surface Area / BET	[m ² /g]	3.8	3.0	4.5	4.8	4.0	5.5	4.1	3.7	5.5	3.8	3.5	4.7
Particle Size / D50 Cilas	[µm]	1.5	1.2	1.8	1.2	0.8	1.5	1.5	1.1	1.9	1.6	1.3	1.8
Particle Size / D90 Cilas	[µm]	5.0	4.0	6.0	5.5	4.7	6.8	7.5	6.0	9.0	7.5	6.0	8.5
Grain Size Distribution		multi-modal			bi-modal			multi-modal			multi-modal		
Chemical Analysis													
Al ₂ O ₃	[%]	99.8			99.8			99.8			91.0		
Na ₂ O	[%]	0.08		0.12	0.08		0.12	0.16		0.20	0.10		0.20
Fe ₂ O ₃	[%]	0.02			0.03			0.03		0.05	0.08		0.12
SiO ₂	[%]	0.03		0.07	0.03		0.07	0.03		0.10	0.05		0.10
CaO	[%]	0.02			0.03			0.03			0.10		
MgO	[%]	0.04			0.03						8.00	7.30	9.30
Physical Properties													
Green Density / 90 MPa	[g/cm ³]	2.55			2.36			2.60			2.50		
Fired Density at 1600 °C/1h	[g/cm ³]	3.45			3.60			3.60			3.40		

The typical product properties are based upon the actual averages from production data.

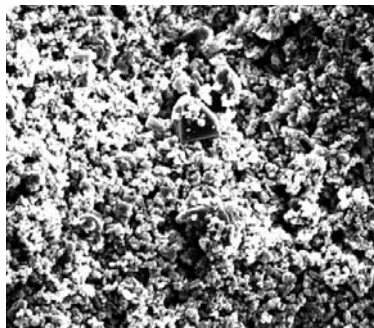
The min-max data show our standard product specification data for these products.

* CTC 55 is a Reactive Alumina/Spinel (MSDS 1000)



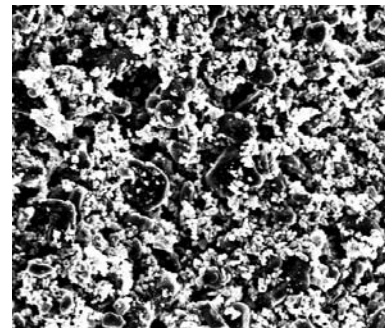
2µm □

CTC 30



2µm □

CTC 40



2µm □

CTC 50



Calcined Aluminas for Refractories

Due to the excellent high temperature properties of α -Alumina, Calcined Aluminas are used in many refractory applications, both in monolithic and shaped products.

Product Performance

Depending on the degree of milling and crystal size, Calcined Aluminas serve a variety of different functions in refractory formulations.

Most important are:

- Upgrade product performance by increasing overall Alumina content of these formulations using natural raw materials in order to improve refractoriness and mechanical properties.
- Improve particle packing by increasing the amount of fine particles resulting in better mechanical strength and abrasion resistance.
- Form a matrix of high refractoriness and good thermal shock resistance by reacting with binder components like Calcium Aluminate Cement and / or clays.

Reactive Aluminas for High Performance Refractories

The fully ground reactive aluminas are specially designed for the production of high performance refractories, where defined particle packing, rheology and consistent placement characteristics are as important as superior physical properties of the final product.

Product Performance

The highly controlled fine particle size distribution down to the sub-micron range and their excellent sintering reactivity give Reactive Aluminas unique functions in refractory formulations.

Most important are:

- Reduce mixing water of monolithic refractories by helping to optimize particle packing.
- Increase abrasion resistance and mechanical strength by the formation of strong ceramic bonds.
- Increase high temperature mechanical performance by substitution of other superfine materials of lower refractoriness.



Calcined and Reactive Aluminas for Refractories



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MSDS 387
MSDS 1000