



Calcined Aluminas for Polishing



Think alumina, think Almatris.



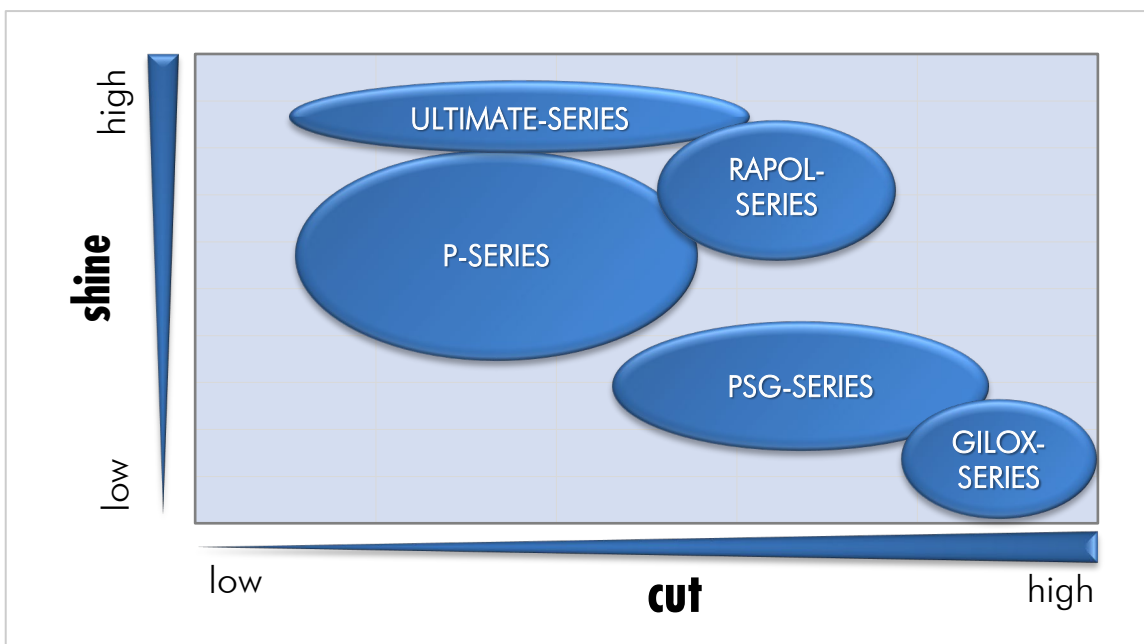
Calcined Aluminas for Polishing

Product Introduction

Calcined Aluminas

Alumina is one of the most important abrasive materials for polishing a wide range of surfaces. Considering the diverse customer needs for different applications, Almatris strives to find premium solutions to enable our customers to combine highest cutting rates and brilliant finishing results.

Almatris offers the broadest polishing portfolio in the industry and with this wide selection we offer the most efficient solution for each customer's specific need.



APPLICATION	ULTIMATE-SERIES	P-SERIES	RAPOL-SERIES	PSG-SERIES	GILOX-SERIES
Metal pre-polishing		X		X	X
Metal finishing	X	X		X	
Aluminum		X		X	X
Plastic/Paint/Resin	X	X	X		
Wood		X			
Stones		X		X	X
Electronics					X
Cleaners	X	X	X		
Brake pads		X		X	X
Jewelry	X	X	X		

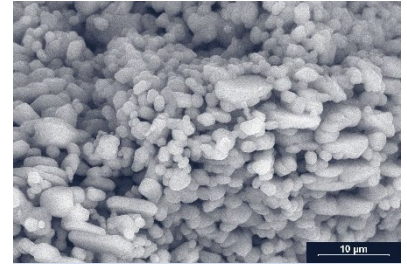


Calcined Aluminas for Polishing

PSG-Series

Metal polishing is the largest polishing application for Almatris premium aluminas. To achieve high surface quality, a two-step approach is suggested. For the pre-polishing step, Almatris supplies a hard calcined PSG series with surface areas $< 1.1 \text{ m}^2/\text{g}$ and clearly defined top cuts.

The goal of pre-polishing operations is to achieve the highest possible abrasiveness together with a well-prepared surface. High performance pre-polishing compounds reduce the time and cost necessary for the final polishing steps by providing a surface with low roughness values.



SEM PSG-Series

Chemical Composition	Unit	All Sizes (Typicals)					
Al_2O_3 by difference	[%]	99.7					
Na_2O	[%]	0.1					
SiO_2	[%]	0.02					
Calcination Degree							high
Primary Crystal Size	[μm]	3					
α - Al_2O_3 Content	[%]	99					
Particle Size		PSG 100	PSG 125	PSG 140	PSG 180	PSG 200	PSG 300
$\geq 425 \mu\text{m}$ / 35 mesh	[%]	0.0	0.0	0.0			
$\geq 200 \mu\text{m}$ / 65 mesh	[%]	≤ 1			0		
$\geq 125 \mu\text{m}$ / 120 mesh	[%]		≤ 4	≤ 0.5		≤ 0.5	
$\geq 90 \mu\text{m}$ / 170 mesh	[%]			≤ 5			
$\geq 63 \mu\text{m}$ / 250 mesh	[%]	50 - 95	30 - 60	10 - 35		3 - 15	
$\geq 45 \mu\text{m}$ / 325 mesh	[%]				20 - 40		≤ 1
D50 Typical	[μm]	75	60	50	10	6	4.5
Physical Properties							
Specific Surface Area	[m^2/g]	≤ 0.7	≤ 0.7	≤ 0.7	≤ 1.0	≤ 1.0	≤ 1.1
Loose Bulk Density	[g/l]	800 - 1050	800 - 1050	700 - 1000	700 - 950	760 - 950	550 - 900
Oil Absorption	[%]	41 - 54	35 - 50	35 - 50	12 - 25	14 - 25	12 - 22

All data are based upon Almatris standard test methods and published as typical or range limits.



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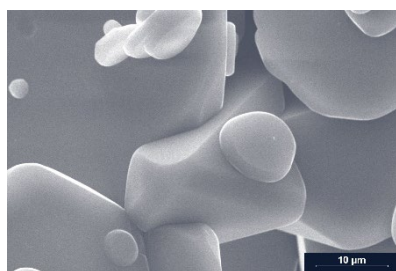
GILOX-Series

For applications targeting for very high cut Almatris products of the GILOX-Series are the right solution. By manipulating crystal size and shape using different processing routes, Almatris can offer a wide range of products with unique cut rates. Another specialty is the transparency and plate-like structure of our products P 20 and P 25, which stay stable during milling process and can be used in special polishing applications as well as wear resistant coatings

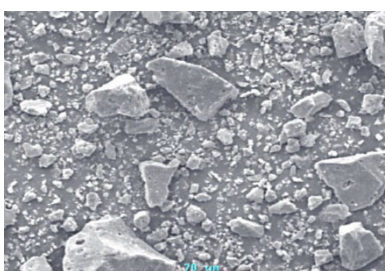
Chemical Composition	Unit	PBC	P 20	P 25	GILOX 125	GILOX 63	BSA 96 -90µm	T60/T64 -45µm
Al ₂ O ₃ by difference	[%]	≥ 99.5	≥ 99.5	≥ 99.5	≥ 99.5	≥ 99.5	≥ 96	≥ 99.5
Na ₂ O	[%]	0.1	0.3	0.35	0.35	0.35	0.3	0.3
SiO ₂	[%]	0.02	0.03	0.03	0.03	0.03	0.5	0.05
Calcination Degree								
		high	very high	very high	very high	very high	very high	very high
Primary Crystal Size	[µm]	4.5	18	22	15	15		
α- Al ₂ O ₃ Content	[%]				99			
Particle Size								
≥ 150 µm / 100 mesh	[%]	≤ 3						
≥ 125 µm / 120 mesh	[%]				≤ 1			
≥ 90 µm / 170 mesh	[%]						≤ 5	
≥ 63 µm / 250 mesh	[%]	40 – 90	50 – 80	55 – 90	5 – 12	0.1 – 3	0 – 25	≤ 1
≥ 45 µm / 325 mesh	[%]							≤ 5
D50 Typical	[µm]	65	15*	25*	22	17		8
Physical Properties								
Specific Surface Area	[m ² /g]	0.3 - 0.45	0.15	0.15	0.2	0.2		
Loose Bulk Density	[g/l]	800 – 1100	600 – 1100	600 – 1100				
Oil Absorption	[%]	35 – 50	20 – 60	25 – 65	15 – 30	10 – 25		

All data are based upon Almatris standard test methods and published as typical or range limits.

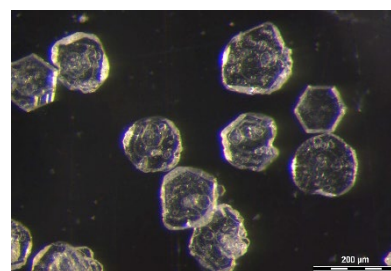
*de-agglomerated



SEM of P 25



SEM of Tabular Alumina T60/T64, -45µm



Transparency of P 25 crystals



Calcined Aluminas for Polishing

P-Series

For finishing of all kinds of surfaces, Almatix supplies a broad portfolio with unique performance in the 9-17 m²/g surface area range. Almatix can offer optimum cutting solutions, as well as polishing and brightening, for customer specific needs.

Chemical Composition	Unit	All Sizes (Typicals)								
Al ₂ O ₃ by difference	[%]	≥ 99.5								
Na ₂ O	[%]	0.4								
SiO ₂	[%]	0.01								
Calcination Degree										
Calcination Degree		low								
Primary Crystal Size	[µm]	≤ 1								
α- Al ₂ O ₃ Content	[%]	≥ 70								
Particle Size		P 6	P 02	P 2	P 2 FR	P 30	P 2 S	P 730	P 630	P 10 feinst
≥ 125 µm / 120 mesh	[%]	≤ 5								
≥ 90 µm / 170 mesh	[%]		≤ 1	≤ 0.5	≤ 0.5	≤ 0.1				
≥ 71 µm / 200 mesh	[%]						≤ 0.1			
≥ 63 µm / 250 mesh	[%]	15 – 40	1.0 – 15	0.1 – 5	≤ 1.5	0.1 – 3	0.1 – 3			
≥ 56 µm / 270 mesh	[%]							≤ 0.1		
≥ 45 µm / 325 mesh	[%]								≤ 1.0	
≥ 40 µm / 400 mesh	[%]							≤ 3		≤ 0.1
≥ 20 µm / 625 mesh	[%]									≤ 3
D50 Typical	[µm]	33	16	11	24	8.3	9	3.7	3.3	3
Physical Properties										
Specific Surface Area	[m ² /g]	9-17								
Loose Bulk Density	[g/l]	700 – 1000	640 – 740	500 – 800	650 – 850	500 – 800	500 – 800	400 – 600	350 – 650	350 – 550
Oil Absorption	[%]	37 - 47	36 - 46	35 - 45	40 - 50	30 - 40	35 - 45	30 – 40	30 - 40	30 - 40

All data are based upon Almatix standard test methods and published as typical or range limits.



APPLICATION: Resin-Polishing



APPLICATION: Metal-Polishing



APPLICATION: Pre-Metal-Polishing

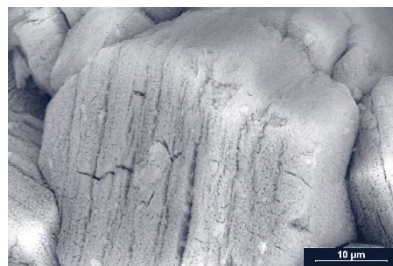


Calcined Aluminas for Polishing

RAPOL-Series

Aluminum oxide is the most widely used polishing medium. As a synthetic inorganic product, it has one important advantage over natural materials used for polishing: the physical properties and chemical compositions are constant regardless of the pressure or temperature experienced during use.

The RAPOL range is especially designed for one step polishing processes, which gives "rapid" cutting and shiny polishing performance. The product enables our customers to offer cost efficient solutions for their end user.



SEM of RAPOL-Series

Chemical Composition	Unit	All Sizes (Typicals)				
Al ₂ O ₃ by difference	[%]	≥ 99.5				
Na ₂ O	[%]	0.1				
SiO ₂	[%]	0.02				
Calcination Degree						
Calcination Degree		low				
Primary Crystal Size	[μm]	≤ 1				
α- Al ₂ O ₃ Content	[%]	≥ 70				
Particle Size	Unit	RAPOL 100	RAPOL 140	RAPOL 500	RAPOL 600	RAPOL 900
≥ 125 μm / 120 mesh	[%]		≤ 0.5			
≥ 90 μm / 170 mesh	[%]		≤ 5	≤ 0.5		≤ 0.0
≥ 63 μm / 250 mesh	[%]	50 - 95	10 - 45	0.1 - 5.0	≤ 0.1	
≥ 45 μm / 325 mesh	[%]				≤ 1	≤ 0.6
D50 Typical	[μm]	70	50	11	5	0.8
Physical Properties						
Specific Surface Area	m ² /g	3.5 - 4.5	3.5 - 4.5	4.0 - 8.0	4.0 - 8.0	5.0 - 9.0
Loose Bulk Density	g/l	800 - 1200	800 - 1200	500 - 900	350 - 650	300 - 650
Oil Absorption	[%]	40 - 60	35 - 50	30 - 40	25 - 35	10 - 25

All data are based upon Almatris standard test methods and published as typical or range limits.



Calcined Aluminas for Polishing

ULTIMATE-Series

Automobile paints are typically two-component systems, as these protect the vehicle better against UV light and abrasion. The alumina used in the polishing emulsion should provide high cut and perfect finish to the clear coat. Almatris ULTIMATE P 815 is an economic and efficient product, giving good cut and polish. For high-end, scratch-free finishing, ULTIMATE P 2500 is the leading product in our portfolio.

In marine applications there are special requirements for the gel coat. Gel coats are very hard, modified resins that provide gloss and protect the fiberglass structure against ultraviolet degradation and hydrolysis. Polishing compounds need an aggressive cut and in parallel a good polishing performance, to achieve a smooth surface. Almatris offers specially designed aluminas for gel coat polishing, such as ULTIMATE P 1500, the best performing powder for that application.

Chemical Composition	Unit	All Sizes (Typicals)		
Al ₂ O ₃ by difference	[%]	≥ 99.7		
Na ₂ O	[%]	0.2		
SiO ₂	[%]	0.02		
Calcination Degree				
		low		
Primary Crystal Size	[µm]	≤ 0.5		
α- Al ₂ O ₃ Content	[%]	99.5		
Particle Size		ULTIMATE P 815	ULTIMATE P 1500	ULTIMATE P 2500
≥ 63 µm / 250 mesh	[%]	≤ 0.1		
≥ 45 µm / 325 mesh	[%]	≤ 1.0		
≥ 20 µm / 625 mesh	[%]		≤ 3.0	≤ 0.5
D50 Typical	[µm]	8	5	2
Physical Properties				
Specific Surface Area	[m ² /g]	5 - 10	4 - 8	4 - 7
Loose Bulk Density	[g/l]	400 - 650	450 - 650	
Oil Absorption	[%]	50 - 58	42 - 52	60 - 75

All data are based upon Almatris standard test methods and published as typical or range limits.



APPLICATION: Marine Gel Coat Polishing



APPLICATION: Clear Coat Polishing



APPLICATION: Headlight Polishing



Calcined Aluminas for Polishing

Standard Packaging

- 10 kg / 25 kg / 50 lbs paper bags
- 900 / 1000 kg / 2500 lbs big bag, discharge sleeve and shrink wrapped (depending on bulk density)



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