

CALCINED ALUMINA

Calcined alumina is produced through the calcination (“heating”) of alumina to various temperatures. By controlling the calcination temperatures and time, the properties of the alumina can be controlled. Calcined alumina is therefore utilized in a variety of industrial applications including Structural ceramics, Technical ceramics, Polishing compounds for plastic, metal, and glass, Fillers for Rubber and Plastics, Friction - anti slip, Refractories, Paint & Coatings and Thermal Spray Powders.

Typically the primary variables in selecting the proper calcined alumina for your application are:

- Density of crystal: low/soft, medium or high/hard material.
 - These factors are determined by the degree and duration of calcination.
- Surface area of the powder: decreases with a higher degree and duration of calcination.
- Soda content: decreases with higher degree of calcination and chemical treatments.
- Alpha Alumina Content.
- Primary Crystal size.

Polishing grades vary depending on the polishing application and the work piece material.



TYPICAL APPLICATIONS

Metal Preparation	Refractory	Refractories
Anti-Slip	Milling	Body and Vehicle Armor
Laminates	Filler	Blasting Media
Coatings	Polishing	Microdermabrasion
Filtration	Structural Ceramic	Grinding
Abrasives	Technical Ceramics	Polishing
		Lapping

TYPICAL PROPERTIES

High Hardness
High Compression Strength
Abrasive Wear-Resistance
Ability to Resist Vigorous Chemical Attacks at Extreme Temperatures
High Degree of Refractoriness
Superior Electrical Insulating Properties
Resistance to Thermal Shock
Dielectric Properties
High Melting Point

CALCINED ALUMINA TECHNICAL DATA

	MN/Y	MN/Y-407	DN-6	DN-440	DN-430	DN-420	DN-206
Al ₂ O ₃ (%)	≈99.0	≈99.0	≈99.3	≈99.3	≈99.3	≈99.3	≈99.3
Na ₂ O (%)	0.4 - 0.9	0.6 - 1.1	≤0.5	≤0.5	≤0.5	≤0.5	≤0.5
Specific Surface Area (m ² /g)	0.15 0.35	0.6 - 0.11	0.2 - 0.5	0.3 - 0.7	0.3 - 0.7	0.3 - 0.7	0.5 - 0.9
Particle Size Distribution d ₅₀ (μm)	≈70	7 - 10	≈80	12 - 28	10 - 20	6 - 10	6 - 8
Particle Size Distribution d ₉₀ (μm)	≈120	15 - 30	≈200	70 - 100	50 - 80	10 - 60	10 - 20
Primary Crystal Size (μm)	≈15	≈7	≈6	≈6	≈6	≈6	≈6
Oil Absorption (ml/100g)	≈60	≈18	≈43	≈30	≈25	≈20	≈20
Cutting Effect	9	8	9	8	8	7	7
Polishing Effect	1	3	1	2	3	3	3

	MDS	MDS-6	MZS	MZS-12	MZS-3	MPS
Al ₂ O ₃ (%)	≈99.8	≈99.8	≈99.7	≈99.8	≈99.9	≈99.3
Na ₂ O (%)	<0.1	<0.1	≤0.1	≤0.1	≤0.1	≤0.1
Specific Surface Area (m ² /g)	0.3 - 0.6	0.5 - 1.2	0.7 - 1.3	0.6 - 1.5	0.8 - 1.8	3 - 5
Particle Size Distribution d ₅₀ (μm)	≈70	4 - 6	≈70	7 - 15	2.5 - 5	≈70
Particle Size Distribution d ₉₀ (μm)	≈120	9 - 15	≈120	≈70	7 - 12	≈120
Primary Crystal Size (μm)	≈4	≈4	≈2.5	≈2.5	≈2.5	≈1
Oil Absorption (ml/100g)	≈60	≈30	≈60	≈30	≈25	≈60
Cutting Effect	7	6	7	5	4	3
Polishing Effect	3	4	3	5	6	7

	PN-6	PN-202	PN-505	PN-6(12)	PS-6	PS-6(12)	PC12-2
Al ₂ O ₃ (%)	≈99.5	≈99.6	≈99.8	≈99.9	≈99.8	≈99.8	≈95
Na ₂ O (%)	≤0.5	≤0.5	0.2 - 0.4	≤0.2	≤0.12	-	≤0.3
Specific Surface Area (m ² /g)	4 - 14	8 - 15	8 - 15	8 - 15	4 - 5.5	8 - 15	5
Particle Size Distribution d ₅₀ (μm)	≈80	2 - 4	1.5 - 3	≈30	≈30	≈25	1.5 - 2.5
Particle Size Distribution d ₉₀ (μm)	≈220	18 - 30	7 - 14	≈50	≈50	≈30	≈25
Primary Crystal Size (μm)	≈1	≈1	≈1	≈1	≈0.5	≈0.5	≈0.5
Oil Absorption (ml/100g)	≈50	≈30	≈30	≈45	65 - 70	65 - 70	≈35
Cutting Effect	3	2	1	3	2	2	2
Polishing Effect	8	9	9	9	9	9	10

Very Hard
Hard
Intermediate
Soft
Very Soft