

High Purity (Al₂O₃) 99.9% Alumina Material Specifications

Alumina Oxide (Al₂O₃) is a readily available material with reasonable processing cost, possessing excellent mechanical, electrical, and wear properties. Our fabricated Alumina is used in a wide range of applications not limited to aerospace, automotive, medical and military.

Technical Products processes include cold isostatic pressing of green billets, pre-fired machining, sintering, and post sintered grinding operations.

Physical Properties	Units	Al ₂ O ₃ -99.9%
Bulk Density	g/cm ³	3.93
Color	-	ivory
Water Absorption	%	0
Hardness (Rockwell 45 N)	-	86
Grain Size	Microns	3

Mechanical Properties	Units	Al ₂ O ₃ -99.9%
Compressive Strength	MPa	2600
Modulus of Elasticity	GPa / psi • 10 ⁶	393 / 57
Flexural Strength	MPa /psi • 10 ³	400 / 58
Poisson's Ratio	-	0.22
Fracture Toughness	MPa m ^{1/2}	5
Gas Permeation	%	0

Thermal Properties	Units	Al ₂ O ₃ -99.9%
Max. Use Temperature (no load)	°C / °F	1700 / 3092
Thermal Conductivity	W/mK	35
Thermal Expansion 20°C – 1000°C	10 ⁻⁶ /°C	8.2
Specific Heat	J/kg*K	870

Electrical Properties	Units	Al ₂ O ₃ -99.9%
Dielectric Constant	-	9.7
Dielectric Strength	ac V/mils	230

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