



Technical Products, Inc.

P: 262-335-3635 | F: 262-335-3606

E: tpi@technicalproductsinc.com

www.technicalproductsinc.com

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 |

**The information provided in this table is a compilation of publicly available data. This information is provided for comparison purposes only, and is not intended to be warrantable. Further, *Technical Products, Inc.* disclaims any and all liability from errors, in accuracies, or omissions.