



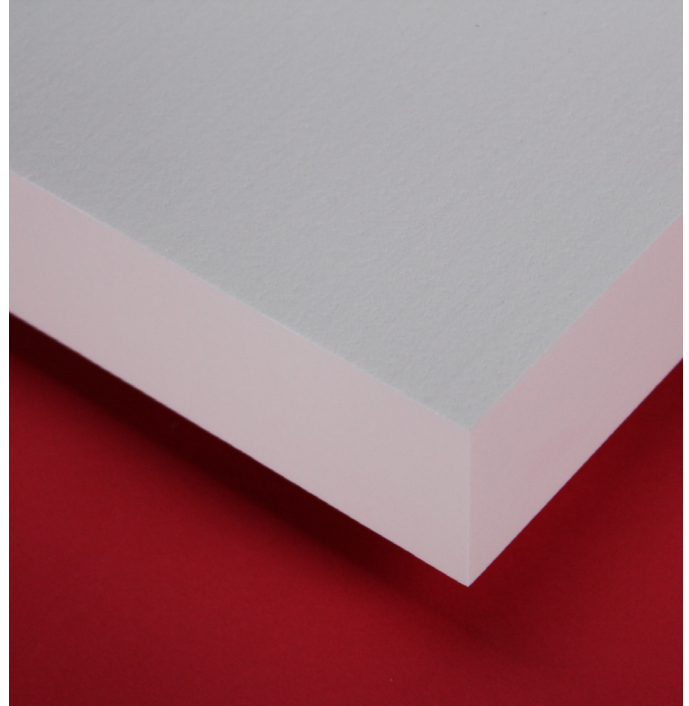
Alumina Type AL-30AA

General Information

ZIRCAR Ceramics' Alumina Type AL-30AA is a medium-density, high-strength, uniformly rigid refractory structure composed of high-alpha polycrystalline alumina fibers and high-purity alumina binders. AL-30AA exhibits a fine, open-pore structure and is made to an optimum bulk density of 0.48 g/cc (30 pcf) which imparts very low thermal conductivity at elevated temperatures. AL-30AA exhibits a very high Al₂O₃ content giving it superior resistance to chemical attack and dimensional stability in industrial applications with continuous temperatures of 1500°C (2732°F) with intermittent use to 1600°C (2912°F).

AL-30AA is manufactured with a high fiber-to-binder ratio making it highly machinable to precise dimensional tolerances. It exhibits high electrical resistivity with high microwave and RF transparency at elevated temperatures. AL-30AA is pure white and exhibits high reflectance.

AL-30AA is pre-fired contains no organic binders and will produce no smoke or odors when heated. AL-30AA shows excellent resistance to chemical attack and is not affected by oil or water. It is, however, affected by hydrofluoric acid, phosphoric acid and strong alkalis.



Characteristics & Properties

Typical Composition, %	
Al ₂ O ₃	97
SiO ₂	3
Organic Content	0
Density, g/cc (pcf)	0.48 (30)
Maximum Use Temperature*, °C (°F)	
Continuous	1500 (2732)
Intermittent	1600 (2822)
Melting Point, °C(°F)	1870 (3392)
Specific Heat, J/kg°K (BTU/lb °F)	1047 (0.25)
Linear Shrinkage‡, %	
24 hrs. at 1500°(2730°F)	2
24 hrs. At 1650°(3002°F)	8
Thermal Expansion Coefficient, Room Temperature to 1000°C(1832°F)	7.5 x 10 ⁻⁶ /°C (4.2 x 10 ⁻⁶ /°F)
Open Porosity, %	85
Compressive Strength**, MPa (psi) at 10% Compression	1.0 (145)

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Characteristics & Properties Continued

Flexural Strength**, MPa (psi) at 10% Compression	1.8 (255)
Thermal Conductivity**, (ASTM C177-76) W/m ² K (BTU/hr ft ² °F/in)	
250°C (482°F)	0.9 (0.65)
525°C (977°F)	0.12 (0.85)
800°C (1472°F)	0.16 (1.10)
1075°C (1967°F)	0.19 (1.30)
1350°C (2462°F)	0.23 (1.60)
1650°C (3002°F)	0.27 (1.86)

The data presented herein is intended to help the user to determine the appropriateness of this material for their application.

This data is a nominal representation of this product's properties and characteristics and therefore should not be used in preparing specifications.

* Maximum use temperature is dependent on variables such as stresses, both thermal and mechanical, and the chemical environment that the material experiences. ** Properties expressed parallel to thickness. ‡ Properties expressed perpendicular to thickness.

Suggested Applications

Primary thermal insulation in bright annealing furnaces and other thermal process systems with hydrogen gas atmospheres operating to 1550°C (2822°F).

Thermal insulation, supports and fixtures in high-temperature Solid Oxide Fuel Cells and other advanced energy systems. Precision-machined thermal insulation in scientific analytical instruments.

Molten non-ferrous metal contact and transport where SiO₂ must be avoided.

High-temperature setters, supports and process fixtures for use where SiO₂ must be avoided.

Electrical insulation in high-temperature systems operating to 1550°C (2822°F).

Availability of Standard Boards

ITEM #	DESCRIPTION
A14013	AL-30AA, 24"W x 48"L x 0.50"T
A14014	AL-30AA, 24"W x 48"L x 0.75"T
A14015	AL-30AA, 24"W x 48"L x 1.00"T
A14016	AL-30AA, 24"W x 48"L x 1.50"T

To Order

Standard boards: order online or specify quantity, item # and description.

Standard boards are available for immediate shipment from stock.

Standard tolerances for boards are +/- 1/8" on length and width and +/- 1/16" on thickness.

Custom boards as thick as 3"T have been manufactured.

Custom shapes: our state-of-the-art tight tolerance machining techniques allow a wide variety of sizes and shapes to be made.

Cylinders can be manufactured with IDs from 1" to 16" with 1/2" to 2" wall thickness and length up to 36"

Surface treatments including rigidization with colloidal alumina (AL-R/H) or colloidal silica (SI-RIG) or coating with alumina cement (AL-CEM) are all available.



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Revision Date Dec 3, 2016