Alumina
Type ECO-20AA

General Information

ZIRCAR Ceramics' Alumina Type ECO-20AA is a rigid low-density insulation board made of high-purity alumina fibers, refractory alumina filler and inorganic alumina binder.
ECO-20AA is an ultra-high-alumina utility-grade board that was specially designed for use as bulk thermal insulation in bright annealing furnaces and other advanced thermal process systems operating with reducing atmospheres and temperatures as high as 1600°C (2912°F). It is pre-fired, contains no organic materials and is useful in applications where silica cannot be tolerated. ECO-20AA exhibits 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_2O_3	98
SiO_2	2
Organic Content	0
Density, g/cc (pcf)	0.31 (20)
Color	White
Maximum Use Temperature*, °C (°F)	1600° (2912°)
Specific Heat, J/kg°K (BTU/lb °F)	1047 (0.25)
Flexural Strength**, MPa (psi) @ room temp	0.31 (45)
Compressive Strength**, MPa (psi) @ 10% compression	0.11 (15)
Linear Shrinkage‡, % 1 hr at 1650°C (3002°F)	1.5
Thermal Conductivity**, (ASTM C177-76) W/m°K (BTU/hr ft² °f/in)	
400°C (752°F)	0.09 (0.6)
800°C (1472°F)	0.15 (1.0)
1200°C (2192°F)	0.21 (1.5)
Sag/Distortion, 1" x 1" beam on 5" span, % after 4 hrs @ 1540°C (2740°F)	4

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.

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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, Solid Oxide Fuel Cells operating to 1550°C (2822°F).
Backup thermal insulation in furnaces and thermal process systems operating to temperatures exceeding 2000°C (3632°F).
High temperature setters, supports and process fixtures for use in reducing atmospheres.
Electrical insulation in high-temperature systems operating to 1550°C (2822°F).

Availability of Standard Boards

ITEM #	DESCRIPTION
A14503	ECO-20AA, 24”W x 48”L x 1.00”T
A14504	ECO-20AA, 24”W x 48”L x 2.00”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 +/- 0.25” on length and width and +/- 0.188” on thickness.

Custom boards as large as 12”W x 72”L x 3”T have been manufactured.

Custom shapes: ECO-20AA is easily cut with conventional tooling.

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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