

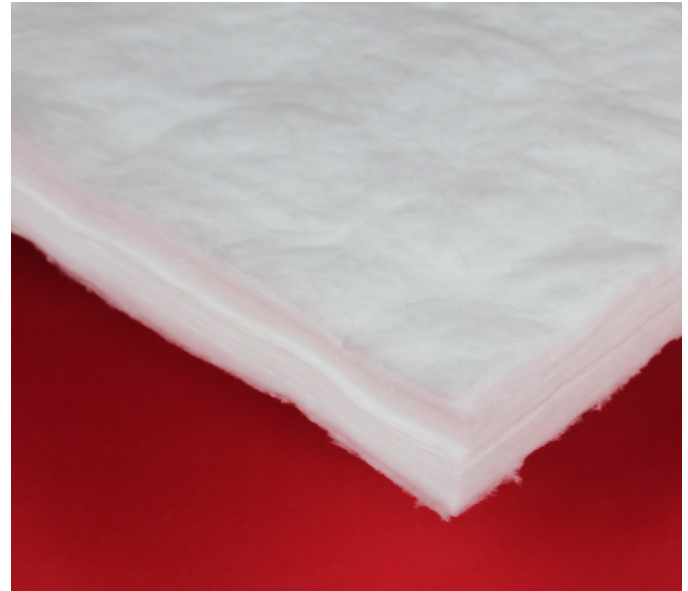


Alumina Mat

General Information

ZIRCAR Ceramics' Alumina Mat is a lofty, layered, low-density flexible mat made of 100% polycrystalline alumina fiber. It is light in weight, contains virtually no shot and is designed for use to temperatures as high as 1650°C (3002°F).

Alumina Mat's high-purity aluminum oxide fibers exhibit lightweight, low-thermal conductivity, low-thermal mass and immunity to thermal shock. A minor addition of silica modifies the fiber's microcrystalline structure which inhibits unwanted grain growth. This prevents embrittlement that usually occurs after extended use at elevated temperatures. Alumina Mat is not affected by oil or water and resists attack in numerous aggressive chemical environments. It is stable in vacuum, inert or reducing atmospheres. It is however affected by hydrofluoric acid, phosphoric acids and strong alkalis.



Characteristics & Properties

Composition, %	
Al ₂ O ₃	95-97
SiO ₂	3-5
Trace Elements (total)	<0.5
Sodium, ppm	875
Calcium, ppm	525
Density, g/cc (pcf)	0.035 (2.2)
Thickness, cm (in.)	3.5 (1.38)
Median Fiber Diameter, micron	3.0 - 3.5
Maximum Use Temperature*, °C (°F)	1650 (3002)
Melting Temperature, °C (°F)	2036 (3700)
Specific Heat, J/kg °K (BTU/lb °F)	1047 (0.25)
Loss on Ignition, % after 2 hr @ 800°C	0
Linear Shrinkage‡, %	
1200°C (2192°F)	0
1425°C (2600°F)	2.2
1535°C (2800°F)	3
1650°C (3002°F)	4

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Characteristics & Properties Continued

Thermal Conductivity** ASTM C177-76 W/m °K (BTU/hr ft ² °F/in)	
315°C (599°F)	0.07 (0.50)
540°C (1000°F)	0.09 (0.77)
760°C (1400°F)	0.13 (1.03)
980°C (1796°F)	0.17 (1.33)
1200°C (2192°F)	0.23 (1.65)
1425°C (2597°F)	0.30 (2.15)

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 perpendicular to thickness. ** Properties expressed parallel to thickness.

Suggested Applications

Primary thermal insulation in low-mass furnaces and thermal process systems operating to 1650°C (3002°F)

Backup thermal insulation in furnaces, solid oxide fuel cells and thermal process systems operating to high temperatures and in severe chemical atmospheres.

General high-temperature furnace repair.

Furnace insulation packing around sight tubes, ports, expansion joints, and masonry cracks.

Tray liners for sintering chemically-sensitive compounds.

Availability of Standard Mat

ITEM #	DESCRIPTION
D9201	ALUMINA MAT, 18"W x 24"L SHEET
D9202	ALUMINA MAT, 24"W x 72"L ROLL
D9203	ALUMINA MAT, 24"W x 48.5' L ROLL

To Order

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

Standard items are available for immediate shipment from stock.

Custom cut sizes and die cut components are available.



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