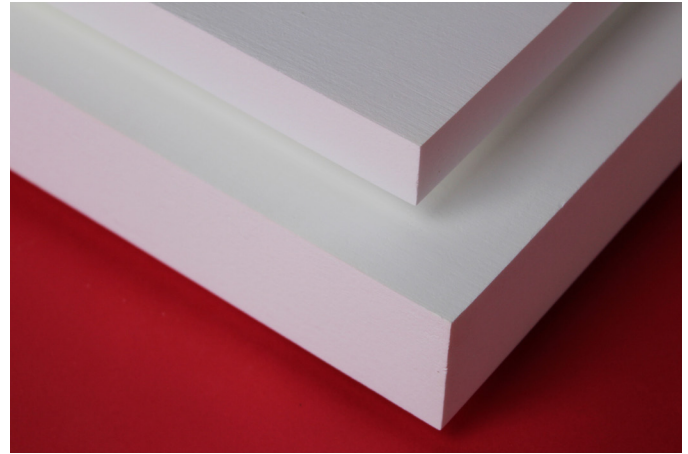




## Alumina Type AL-28/1800

### General Information

ZIRCAR Ceramics' Alumina Type AL-28/1800 is a cost effective, utility-grade hot face insulation for use in kilns, furnaces and other thermal process systems operating to temperatures of 1800°C. AL-28/1800 is a carefully controlled combination of polycrystalline Al<sub>2</sub>O<sub>3</sub> fiber (PCW), high-purity alumina filler and inorganic refractory binders. AL-28/1800 is low in mass and exhibits low thermal conductivity, good strength and thermal shock resistance. It is pyrotechnically treated to exhibit low thermally-induced shrinkage. AL-28/1800 exhibits a tightly-bound consistency making it suitable for building into Butcher-Block furnace roof and wall components. It is readily bonded using ZIRCAR Ceramics' Alumina Cement Type AL-CEM/XT.



### Characteristics & Properties

Composition, %	
Al <sub>2</sub> O <sub>3</sub>	80
SiO <sub>2</sub>	20
Organic Content, %	0
Density, g/cc (pcf)	0.44 (28)
Shrinkage, %	
at 1700°C	2.9**, 0.68‡
at 1800°C	6**, 3‡
Sag Resistance, % at 1700°C	0.2
MOR**, MPa (psi)	1.85 (264)
Compressive Strength**, MPa (psi) at 10% Compression	1.38 (199)
Thermal Conductivity**, W/m <sup>2</sup> K (BTU/hr ft <sup>2</sup> °F/in)	
400°C (752°F)	0.22 (1.5)
600°C (1112°F)	0.24 (1.7)
800°C (1472°F)	0.28 (1.9)
1200°C (2192°F)	0.36 (2.5)
1400°C (2552°F)	0.41 (2.8)
1600°C (2912°F)	0.42 (2.9)

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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Technical Data Bulletin  
Alumina Type AL-28/1800  
[www.zircarceramics.com](http://www.zircarceramics.com)  
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# Alumina Type AL-28/1800

## Suggested Applications

Primary thermal insulation in low-mass furnaces and thermal process systems operating to 1800°C (3272°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.  
 Electrical insulation in high-temperature systems operating to 1800°C (3272°F).

## Availability of Standard Boards

ITEM #	DESCRIPTION
A177-04	AL-28/1800, 18"W x 24"L x 1.0"T
A177-05	AL-28/1800, 18"W x 24"L x 1.5"T
A177-06	AL-28/1800, 18"W x 24"L x 2.0"T

## To Order

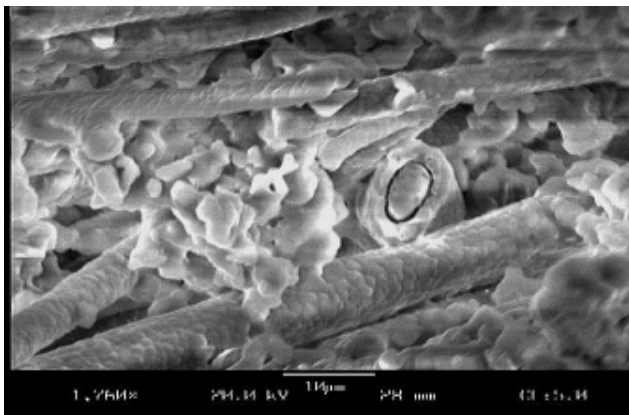
**Standard boards:** order online or specify quantity, item # and description.  
 Standard boards are available for immediate shipment from stock.

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

**Custom boards** as large as 18"W x 24"L with thicknesses up to 3" 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.

**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.



This image shows AL-28/1800's compositized microstructure in which its high-purity filler is tightly sintered in place and its Al<sub>2</sub>O<sub>3</sub> fiber is held in a strong mullite-composite binder.



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