



Alumina-Silica Type UNIFORM A

General Information

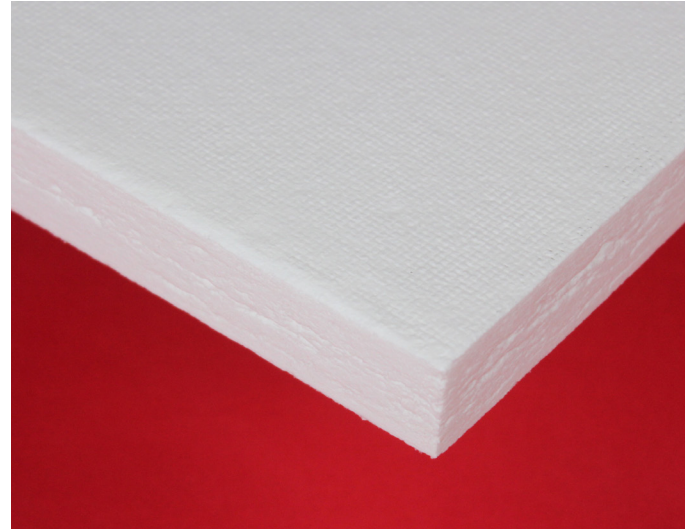
ZIRCAR Ceramics' Alumina-Silica Type UNIFORM A is a unique family of ceramic-fiber-based insulation with exceptional machinability and very good strength. UNIFORM A products are made of specially prepared refractory ceramic fibers (RCF) with inorganic amorphous silica as a binder. This binder is uniformly distributed throughout the thickness of the body without the use of any organic binders and therefore UNIFORM A produces no smoke or odor when heated. Uniform products are designed to deliver low thermal conductivity with excellent thermal shock resistance.

UNIFORM A is manufactured in two varieties:

UNIFORM A1, with a bulk density of 0.29 g/cc (18 pcf) and

UNIFORM A2, with a bulk density of 0.45 g/cc (28 pcf).

UNIFORM A 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

Type: Uniform	A1	A2
Color	Off White - Cream	
Typical Composition, %		
Al ₂ O ₃	41	26
SiO ₂	59	74
Density, g/cc (pcf)	0.29 (18)	0.45 (28)
Loss on Ignition, 24 hrs. @ 800°C, %	1.1	1.8
Maximum Use Temp. is a function of the utility these products deliver to your application.		
Thermal Shrinkage, Linear [‡] , Thickness ^{**} , %		
24 hrs. at 800°C (1472°F)	0.4 [‡] , 0.4 ^{**}	0.3 [‡] , 0.4 ^{**}
24 hrs. at 1000°C (1832°F)	1.7 [‡] , 1.3 ^{**}	1.2 [‡] , 1.3 ^{**}
24 hrs. at 1260°C (2300°F)	3.66 [‡] , 6.72 ^{**}	4.2 [‡] , 9.1 ^{**}
Modulus of Rupture ^{**} , MPa (psi)	0.63 (91.7)	1.8 (261.0)
Compressive Strength ^{**} , MPa (psi) at 10% Compression	0.16 (22.9)	0.70 (101.0)
Thermal Conductivity ^{**} , W/m K (BTu/hr.°F ft ² /in)		
600°C (1112°F)	0.11 (0.85)	0.13 (0.98)
1100°C (2012°F)	0.25 (1.40)	0.23 (1.54)

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.+

ZIRCAR Ceramics, Inc.

PO Box 519

100 N. Main St., Florida, NY 10921-0519

Telephone: (845) 651-6600

E-mail: sales@zircarceramics.com

Technical Data Bulletin

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www.zircarceramics.com

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Suggested Applications

Primary thermal insulation in low-mass furnaces and thermal process systems with temperatures to 1260°C (2300°C).

Backup thermal insulation in furnaces and thermal process systems operating to high temperatures.

Reflector tiles in infrared paper-drying equipment.

Launders, troughs, distribution (head) boxes, pouring spouts, hot tops and others involving molten non-ferrous metal contact.

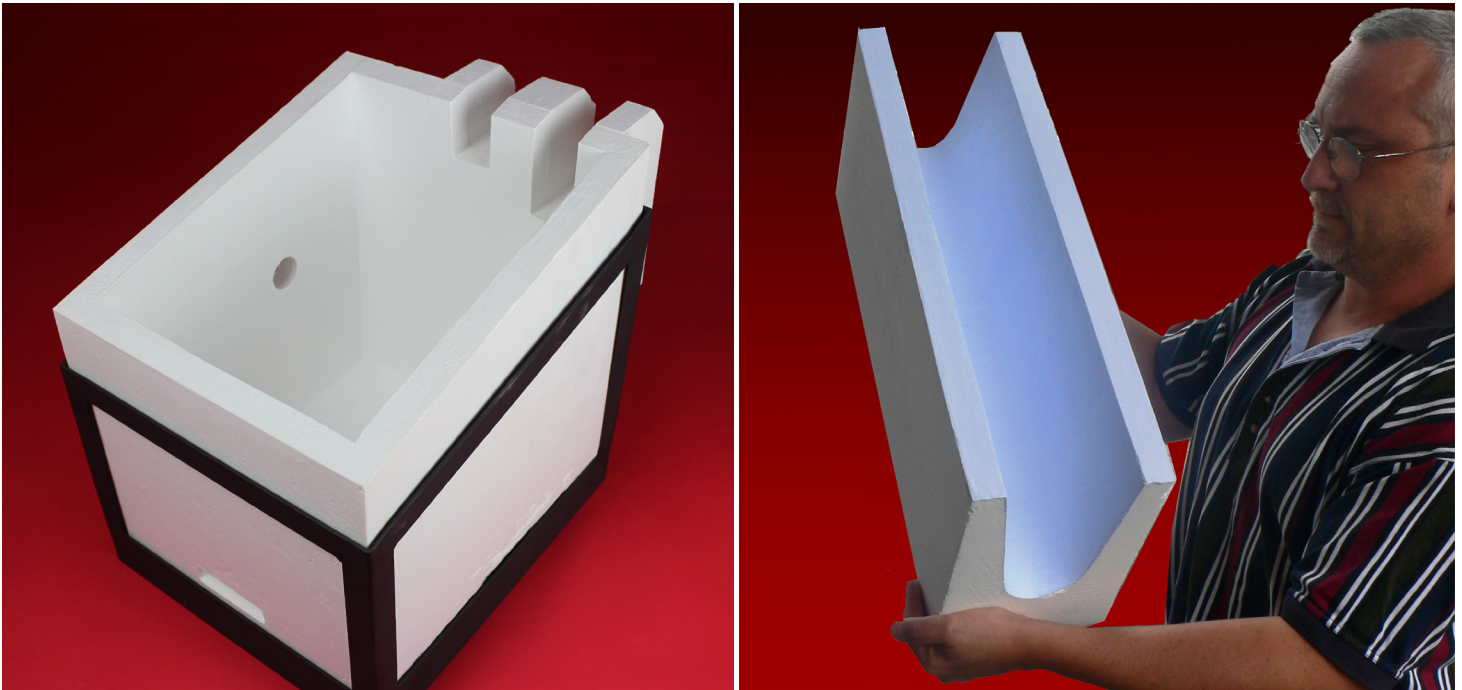
Furnace and kiln flue and chimney linings.

Combustion chamber liners, baffles and muffles.

High-temperature setters, supports and process fixtures.

Electrical insulation in high-temperature systems.

Thermal insulation in hot appliances.



These images above show a Uniform A-1 “Head Box” (left) and a “Trough” (right) which are parts of molten metal delivery systems on Twin Roll Aluminum Sheet Casters. UA-1 with a surface treatment of colloidal silica followed by top coat of SLICOAT ES Boron Nitride can deliver high-quality clean metal ton after ton after ton.



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Alumina-Silica Type UNIFORM A

Availability of Standard Boards

ITEM #	DESCRIPTION
A2-01*	UNIFORM A1, 24"W x 36"L x 1"T
A2-02*	UNIFORM A1, 24"W x 36"L x 2"T
A2-04*	UNIFORM A1, 24"W x 36"L x 4"T
A2-08	UNIFORM A1, 15"W x 49"L x 2"T
A2A-01*	UNIFORM A2, 24"W x 36"L x 1"T
A2A-02*	UNIFORM A2, 24"W x 36"L x 2"T
A2A-04	UNIFORM A2, 24"W x 36"L x 4"T
A2A-08	UNIFORM A2, 15"W x 49"L x 2"T

* Denotes standard stocked items.

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 +/- 1/8" on thickness.

Custom boards as large as 30"W x 96"L x 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 machined. UNIFORM A is readily vacuum formed to custom configurations.

Cylinders can be manufactured with IDs from 1" to 36" with 1/2" to 2" wall thickness and length up to 12"

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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