



Alumina-Silica Type UNIFORM C

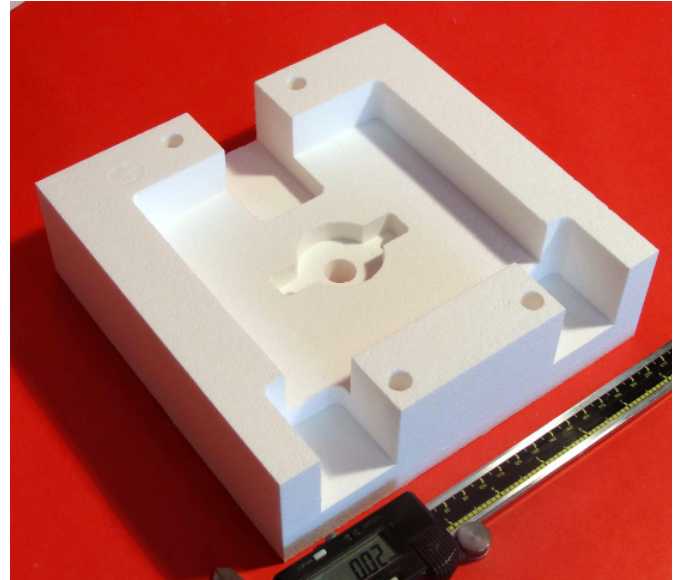
General Information

ZIRCAR Ceramics' Alumina-Silica Type UNIFORM C is a unique family of ceramic-fiber-based insulations with exceptional machinability and very good strength. UNIFORM C products are made of a blend of alpha-alumina polycrystalline fiber and specially prepared refractory ceramic fiber (RCF) with an inorganic amorphous silica binder. This binder is uniformly distributed throughout the thickness of the body without the use of any organic binders and therefore, UNIFORM C produces no smoke or odor when heated. Uniform products are designed to deliver low thermal conductivity with excellent thermal shock resistance. UNIFORM C is manufactured in two varieties:

UNIFORM C1, with a bulk density of 0.29 g/cc (18 pcf) and

UNIFORM C2, with a bulk density of 0.45 g/cc (28 pcf).

UNIFORM C 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	C1	C2
Color	Off White-Cream	
Typical Composition, %		
Al ₂ O ₃	48	30
SiO ₂	52	70
Density, g/cc (pcf)	0.29 (18)	0.45 (28)
Loss on Ignition, 24 hrs. @ 800°C, %	0.6	0.9
Maximum Use Temperature*, °C (°F)	1450 (2642)	1250 (2282)
Thermal Shrinkage, Linear‡, Thickness**, %		
24 hrs. at 800°C (1472°F)	0.0‡, -0.3**	0.0‡, 0.2**
24 hrs. at 1000°C (1832°F)	0.4‡, 0.1**	0.6‡, 1.2**
24 hrs. at 1260°C (2300°F)	1.8‡, 4.8**	3.8‡, 8.8**
24 hrs. at 1420°C (2588°F)	2.6‡, 8.0**	5.1‡, 11.7**
Modulus of Rupture**, MPa (psi)	0.61 (89.0)	1.75 (253.7)
Compressive Strength**, MPa (psi) at 10% Compression	0.19 (27.9)	0.94 (135.9)
Thermal Conductivity**, W/m K (BTU/hr.°F ft ² /in)		
600°C (1112°F)	0.11 (0.76)	0.13 (0.90)
1100°C (2012°F)	0.25 (1.74)	0.23 (1.59)

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

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www.zircarceramics.com

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Suggested Applications

Primary thermal insulation in low-mass furnaces and thermal process systems.
 Backup thermal insulation in furnaces and thermal process systems operating to high temperatures.
 Reflector tiles in infrared paper-drying equipment.
 Launderers, distribution boxes, pouring spouts, hot tops and others involving molten metal contact.
 Furnace and kiln flute 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.

Availability of Standard Boards

ITEM #	DESCRIPTION
A3-01*	UNIFORM C1, 24"W x 36"L x 1"T
A3-02	UNIFORM C1, 24"W x 36"L x 2"T
A3-04	UNIFORM C1, 24"W x 36"L x 4"T
A3-06*	UNIFORM C1, 30"W x 60"L x 2"T
A3-07	UNIFORM C1, 30"W x 60"L x 3"T
A3A-01	UNIFORM C2, 24"W x 36"L x 1"T
A3A-02	UNIFORM C2, 24"W x 36"L x 2"T
A3A-04	UNIFORM C2, 24"W x 36"L x 4"T
A3A-06	UNIFORM C2, 30"W x 60"L x 2"T
A3A-07	UNIFORM C2, 30"W x 60"L x 3"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 in a number of custom sizes 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. UNIFORM C is readily vacuum-formed to custom configuration.

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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