



## Alumina Type SALI

### General Information

ZIRCAR Ceramics' Alumina Type SALI was developed in the early 1970's and has been delivering cost-effective high-performance insulating furnaces and many other advanced thermal process systems longer than any 1700°C (3092°F)-rated rigid alumina-fiber insulation product available today. SALI is a high-strength, low-density, rigid refractory body fabricated from high-alpha polycrystalline alumina fibers tightly bound in a mullite binder matrix. SALI is pre-fired, contains no organics, and is used by some customers in furnaces with long soaks with temperatures as high as 1740°C (3164°F). SALI exhibits a fine, open-pore structure and is a low particulate generator with exceptional machinability. SALI shows 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 <sub>2</sub> O <sub>3</sub>	80
SiO <sub>2</sub>	20
Moisture & Organic Content	0
Bond	Silica
Density, g/cc (pcf)	0.48 (30)
Open Porosity, %	84
Service Temperature*, °C (°F)	1700 (3092)
Maximum Use Temperature*, °C (°F)	1740 (3164)
Melting Point, °C (°F)	1870 (3392)
Color	White
Linear Shrinkage‡, %	
24 hrs at 1650°C (3002°F)	1
24 hrs at 1700°C (3092°F)	3
Flexural Strength**, MPa (psi)	2.07 (300)
Compressive Strength**, MPa (psi) at 10% Compression	1.31 (190)
Softening Temperature <sup>§</sup> , °C (°F)	1100 (2012)
SAG/Distortion, 6"x 1" x 1", 5" Span, % after 24 hrs. at 1650°C (3002°F)	2
Specific Heat, J/kg°K (BTU/lb °F)	1047 (0.25)

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## Characteristics & Properties Continued

Coefficient of Thermal Expansion <sup>‡,a</sup> , Room Temperature to 1100°C (1832°F), x 10 <sup>-6</sup> /°C (10 <sup>-6</sup> /°F)	8.0 (4.5)
Thermal Conductivity,** ASTM C1113 W/m <sup>2</sup> K (BTU/hr ft <sup>2</sup> °F/in)	
400°C (752°F)	0.23 (1.6)
600°C (1112°F)	0.25 (1.7)
800°C (1472°F)	0.29 (2.0)
1200°C (2192°F)	0.36 (2.5)
1400°C (2552°F)	0.40 (2.8)
1600°C (2912°F)	0.45 (3.1)

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. <sup>a</sup> CTE per ASTM C-372, 0.5 psi load on 1/2" square sample, 3°C/min. heating / cooling rate, air atmosphere. 8 Temperature sample yields under load of push rod in CTE determination.

## Suggested Applications

Primary thermal insulation in low-mass furnaces and thermal process systems operating to 1740°C (3164°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 1700°C (3092°F).

## Availability of Standard Boards

ITEM #	DESCRIPTION
A18011	SALI, 18"W x 24"L x 0.50"T
A18012	SALI, 18"W x 24"L x 0.75"T
A18013	SALI, 18"W x 24"L x 1.00"T
A18014	SALI, 18"W x 24"L x 1.50"T
A18015	SALI, 18"W x 24"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 +/- 1/8" on length and width and +/- 1/16" on thickness.

**Custom boards** as large as 18"W x 24"L x 3"T have been manufactured in monoliths. Larger structures can be produced using a Green-Bonding process.

**Custom shapes:** our state-of-the-art tight-tolerance machining techniques allow a wide variety of sizes and shapes to be made.

**Cylinders** can be manufactured with IDs from 1" to 20" with 1/2" to 3" wall thickness and length up to 36".

**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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