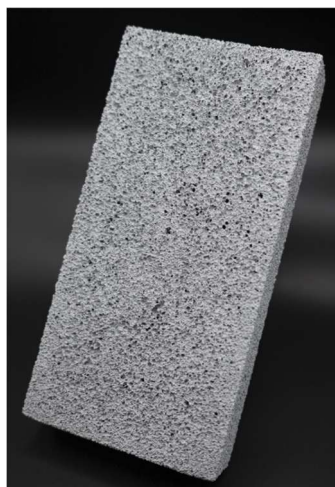




FurnaSure™ is a low-mass, white-coated ceramic foam insulation product for compact furnace systems up to 1290°C. It combines low density, low thermal conductivity, high electrical insulation, severe thermal-shock tolerance, and unusually easy machining for a high-temperature ceramic insulation material.

Designed for furnace users and furnace makers who want smaller wall packs, lighter doors and plugs, cleaner handling, and custom geometry without moving into very high-cost specialty refractory boards.

Ideal for fast-ramping induction furnaces or anyone looking to increase ramp rates and throughput.

1290°C

Max in air

0.05 W/m-K

Thermal k

0.15-0.20 g/cc

Density

~1000°C/sec

Thermal shock

Typical properties

Parameter	FurnaSure (SI)	FurnaSure (Imperial)
Density	0.15-0.20 g/cc	9.4-12.5 lb/ft³
Max operating temperature in air	1290°C	2350°F
Thermal conductivity	~0.05 W/m-K	~0.029 BTU/h-ft-°F
Specific heat capacity (25°C)	850 J/kg-K	0.20 BTU/lb-°F
Heat capacity per volume	~0.13-0.17 MJ/m³-K	~1.9-2.5 BTU/ft³-°F
Coefficient of thermal expansion	$3.2 \times 10^{-6} / ^\circ\text{C}$	$1.8 \times 10^{-6} / ^\circ\text{F}$
Compressive strength	2-14 MPa	300-2000 psi
Pore size (tunable)	80-1200 µm	3-50 mils
Pores per inch (tunable)	30-250 PPI	12-100 PPcm
Machinability	Easy	Easy
Thermal-shock tolerance	~1000°C/sec demonstrated	~1800°F/sec demonstrated
Low-temperature stability	-200°C stable	-320°F stable
Electrical behavior	Highly electrically insulating	Highly electrically insulating

Best-fit applications

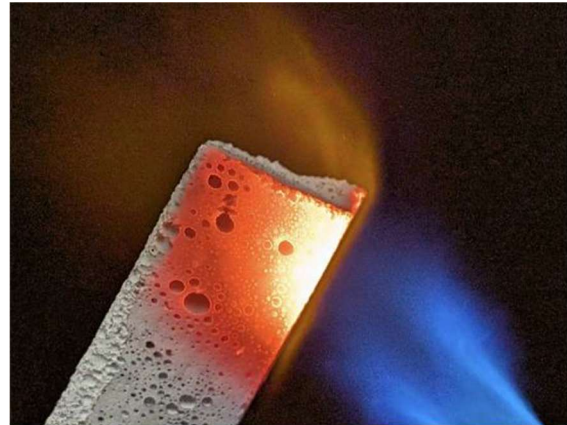
- Compact box and lab furnaces
- Induction furnace plugs, shields, and fixtures
- Tube furnace plugs and access blocks
- Removable liners, baffles, and door inserts
- Low-load shelves, setters, spacers, and sample holders
- Cryo-to-hot insulation and thermal-shock service

Machining guidance

Machine with standard wood-shaping tools, band saws, drills, CNC tools, or hand tools. Carbide edges and tips are recommended for longer tool life. Lubrication or cooling is typically not required. Use appropriate dust protection for the nose, mouth, and eyes.

Bonding guidance

FurnaSure bonds well with common high-temperature oven and refractory cements when joint geometry, cement thickness, compression, and cure conditions are properly selected. This supports larger assemblies made from machinable blocks and panels.



Thermal-shock and induction-furnace use

FurnaSure can withstand severe temperature-shock demonstrations of approximately 1000°C/sec. This makes it especially interesting for induction furnaces and other systems where the workpiece, susceptor, fixture, or local hot zone can heat much faster than the surrounding insulation.

Clean, stable, electrically insulating hardware

The white coating provides a cleaner working surface than exposed black foam and helps users inspect parts for residue, handling damage, or contamination. FurnaSure is highly electrically insulating and is stable down to liquid nitrogen temperatures for cryogenic handling or large cold-to-hot temperature swings.

Suggested customer evaluation path: Start with a removable part such as a door plug, sidewall insert, baffle, observation-port block, induction shield, or sample fixture. Track outside shell temperature, heat-up/cool-down time, energy per cycle, visible shedding, cement-bond integrity, dimensional stability, and handling durability after repeated cycles.

Available Sizes

9" x 4.5" x 1.25" (half fire brick) and 9" x 4.5" x 2.5" (full fire brick)

Larger panel sizes up to 2" thickness and 12" x 12" maximum area available upon request.

Smaller furnace furniture sizes and shapes available upon request.

FurnaSure can be cemented together with any high temperature cement to create any strong shape desired.