

## SiC Foam Tile SICTILE-1650 by Replica Technique

SICTILE-1650 (in the form of tiles of 200x200x20 mm) is an open cell SiC foam tile formed by replica technique that has very high operational temperature capability of 1650°C under oxidation atmosphere. They possess good handling strength with 80-90% open cell porosity. Light-weight SiC foam based sandwich structures are used for thermal protection systems for aerospace applications. They can be used as volumetric absorbers in the generation of large amounts of electricity by concentrated solar power (CSP) technology. They can also be used as electromagnetic wave absorbing materials and porous burners.

### Salient Features

- Open cell silicon carbide foam based tile with temperature capability of 1650°C under oxidizing atmosphere.
- Open cell porosity, pore size, strut thickness can be optimized by varying the processing conditions.
- Handling strength can be improved by varying the pore size and density.
- Thermal conductivity can be optimized by varying the processing parameters and density.

Properties	Values
Bulk density (g/cc)	0.3-0.8
Open porosity (%)	80-95
Compressive strength (MPa)	1-3
Thermal conductivity (W/mK) RT	0.1-0.3 ( $\rho=0.15-0.2$ g/cc)
Coefficient of thermal expansion ( $\mu\text{m}/^\circ\text{C}$ ) (RT-800°C)	0.5- 2