Open-Cell Foam Tech Sheet

Typical Physical Properties of RVC and SiC Foam

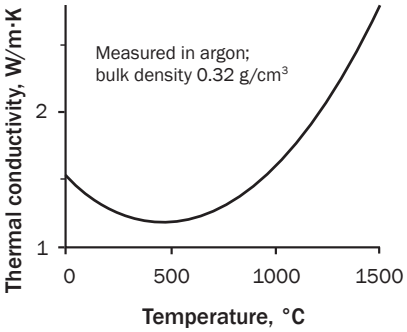
Pore sizes available (ppi):
3, 10, 20, 30, 45, 65, 80, 100

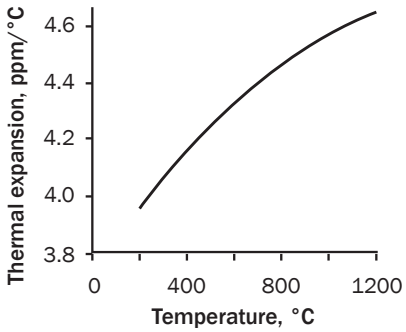
Reticulated Vitreous Carbon (RVC) Foam

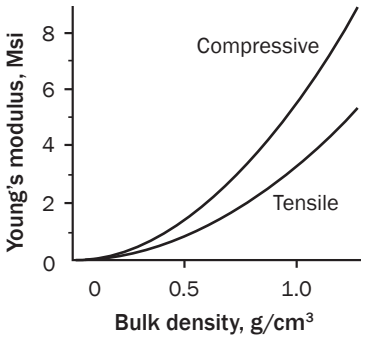
Ash content	0.39 wt% at 1000 °C
Bulk density	0.045 g/cm³
Ligament density	1.538 g/cm³
Resistivity	0.75 Ω·cm
Specific heat	0.30 cal/g/°C
Maximum use temperature	350 °C in air 3500 °C inert
Thermal conductivity, W/m·K	
at 200 °C	0.085
at 300 °C	0.125
at 400 °C	0.180
at 500 °C	0.252
at 650 °C	0.407
at 800 °C	0.625
at 950 °C	0.882
Thermal expansion, ppm/°C	
0–200 °C	1.15
0–500 °C	1.65
0–1000 °C	1.65
Compressive strength, kPa	
at 20 °C	625 (10% deflection) 763 (ultimate)
at 1000 °C in argon	391 (10% deflection) 628 (ultimate)
Shear strength at 20 °C	290 kPa
Tensile strength at 20 °C	690 kPa
Flexural strength at 20 °C	690 kPa
Flexural modulus	58.6 MPa

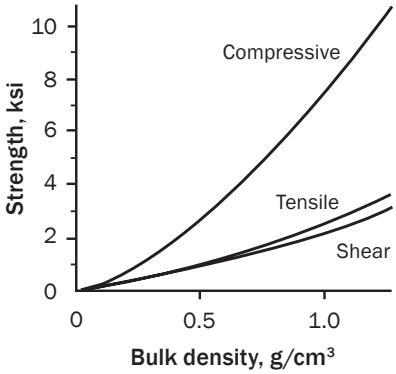
Silicon Carbide (SiC) Foam

Bulk density	0.16–1.28 g/cm³
Relative density	5–40 vol%
Theoretical ligament density	3.2 g/cm³
Specific heat (10% SiC)	0.34 cal/g/°C
Maximum use temperature	1650 °C in air 2500 °C inert
Thermal conductivity	*below*
Thermal expansion	*below*
Young's modulus	*below*
Strength	*below*
Strain to failure	0.07% at 20 °C

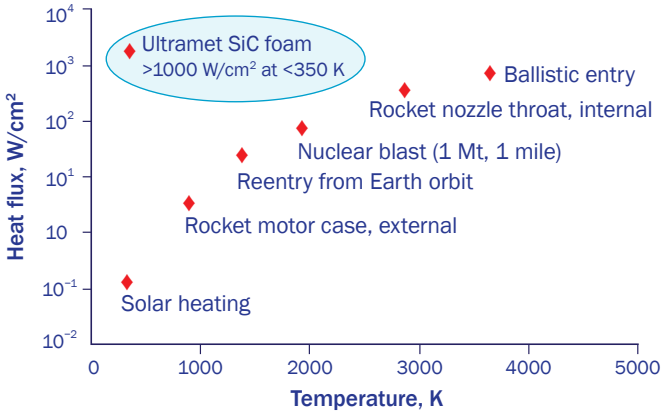








Thermal Performance of SiC Foam in Context

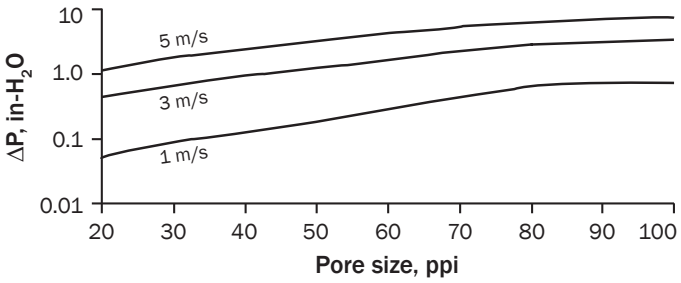


Over

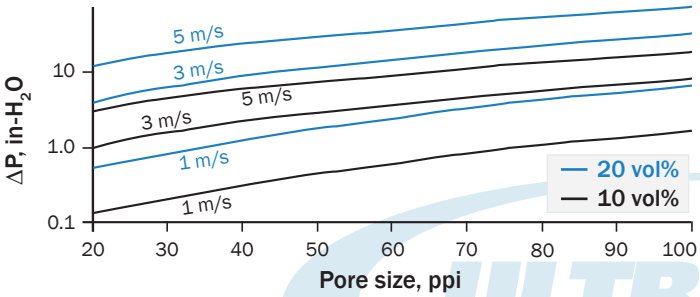
Pressure Drop for RVC Foam

1" thick sample

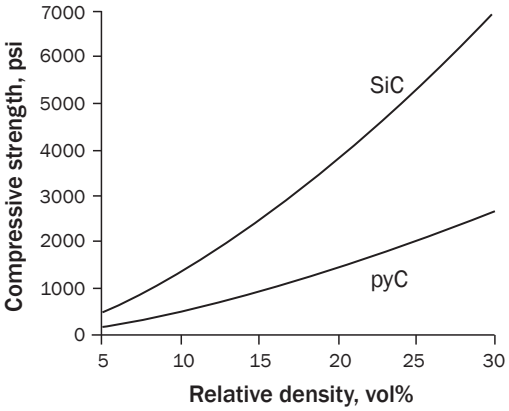
Without Coating



With 20-vol% or 10-vol% Coating

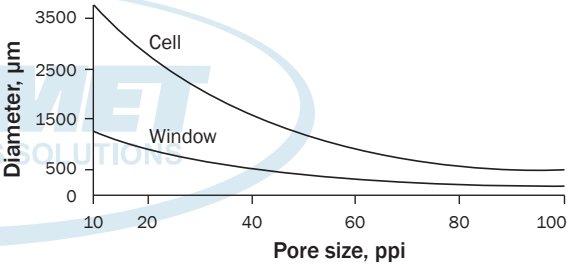


Compressive Strength of Foams



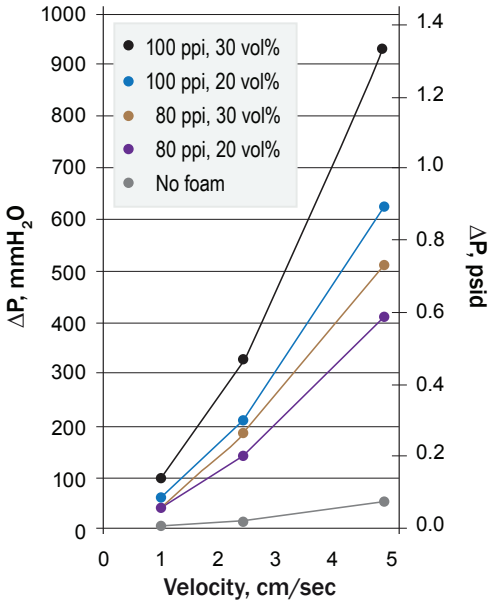
Cell and Window Diameters vs. Pore Size

97 vol%



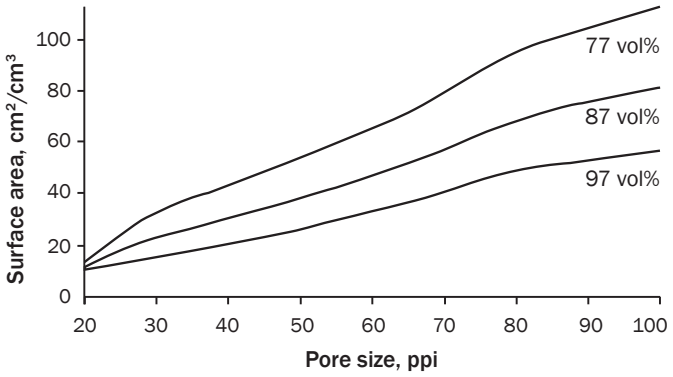
Pressure Drop for SiC Foam

2 × 3 × ½" samples with water flowing parallel to long axis

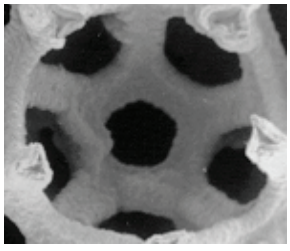


Surface Area of Foams

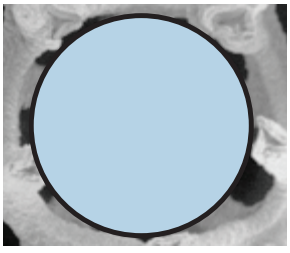
Reported surface area was average of various models and measurements.



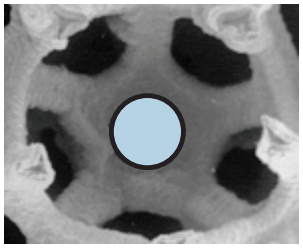
Nomenclature



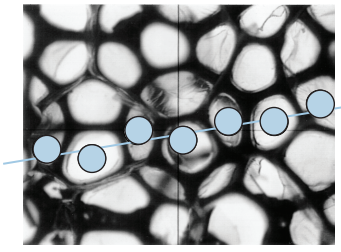
Cell structure



Cell diameter



Window diameter



Pore size: pores per inch (ppi)