

DESCRIPTION

Q-Fiber® is an amorphous, exceptionally pure fibrous silica material used as a lightweight, non-crystalline component in high temperature thermal insulations.

Q-Fiber is formed from high-silica-content sand which is melted, fiberized, acid-washed to remove impurities, rinsed, dried, and heat-treated for structural integrity.

ADVANTAGES

Q-Fiber provides an excellent combination of physical properties including purity, resilience, light weight, as well as resistance to crystal formation, thermal shock, and heat flow. Extremely high in SiO₂ content, chemically stable Q-Fiber will not devitrify in response to elevated temperatures and rapid thermal cycling.

Q-Fiber Amorphous High-Purity Silica Fiber imparts high thermal efficiency with low weight, a critical factor in aerospace insulation design. Q-Fiber also resists thermal shock damage from drastic temperature fluctuations. These flexible and resilient fibers enable Q-Fiber to be readily formed into a variety of standard and unique shapes including sheets, felts, blocks, tiles, and cast forms.

SURFACE AREA

BET surface area measurements indicate 2.38 sq. meters/gm for fiber with an average diameter of 1.5 microns.



TYPE

Bulk Fiber

TEMPERATURE LIMIT

Upper Limit: 2300°F (1260°C)

Continuous Service: 1800°F (982°C)

APPLICATIONS

Q-Fiber forms the primary component for a diversity of insulating materials used in aerospace applications in which service temperatures range from -170°F (-112°C) to 2300°F (1260°C).

Q-Fiber is an efficient, economical alternative for many conventional insulating materials used in nuclear power, automotive, catalytic conversion, and chemical applications. Because of its exceptionally pure fibrous construction, Q-Fiber also provides a potential source for filtration material.

- Aerospace
- Nuclear Power
- Automotive/Catalytic Converters
- Chemical Industries

PROPERTIES

- Non-Crystal Forming
- Chemically Stable
- Heat Flow Resistant
- High Thermal Efficiency
- Low Weight
- Resistant to Thermal Shock
- Easily formed into unique shapes and cast forms
- High Purity

Q-FIBER® AMORPHOUS HIGH-PURITY SILICA FIBER

BULK MATERIAL FOR MANUFACTURE OF INSULATING COMPONENTS

DATA SHEET

THERMAL CONDUCTIVITY (k) PER ASTM C 518

Density		75°F (24°C) Mean Temp		500°F (260°C) Mean Temp		1000°F (538°C) Mean Temp	
(pcf)	kg/m ³	Btu•in/(hr•ft ² •°F)	W/m°C	Btu•in/(hr•ft ² •°F)	W/m°C	Btu•in/(hr•ft ² •°F)	W/m°C
6.0	96	0.23	0.033	0.41	0.058	0.72	0.104

SHRINKAGE*

Temperature		Direction of Shrinkage (%)		
°F	°C	Length	Width	Thickness
1000	538	0.7	0.8	0.9
1200	649	1.4	1.5	1.0
1400	760	1.8	2.2	1.8
1600	871	2.0	2.2	2.0
1800	982	2.6	4.0	9.0
2000	1093	6.2	17.0	40.0

* When felted to 6.0 pcf (96 kg/m³) density



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PRODUCT & TECHNICAL INFORMATION

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Technical specifications as shown in this literature are intended to be used as general guidelines only. Please refer to the Safety Data Sheet and product label prior to using this product. The physical and chemical properties of Q-Fiber listed herein represent typical, average values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice. Any references to numerical flame spread or smoke developed ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions.

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