

CTI2000 VACUUM THERMAL INSULATION

Carbon bonded carbon fibre composite insulation is a highly refractory material capable of operating at temperatures up to 3000°C in argon. Under oxidising conditions it is inert up to 450°C. It is used extensively in the aerospace and vacuum heat treatment industries. Manufactured and outgassed to 2200°C, CTI2000 base stock is very pure with impurities of <500ppm. It is low dusting and can be machined to fine tolerances giving tight furnace linings. This improves temperature uniformity and energy savings.

TYPICAL PROPERTIES ARE:

Density 0.18 +/- 0.02 g/cc

Porosity 85 %

Compressive strength

Parallel 1.5 MPa

Perpendicular 0.8 MPa

Flexural strength

Parallel 1.5 MPa

Perpendicular 0.2 MPa

Coefficient of Thermal Expansion

RT - 1000°C 2.7 to 3.0 x10⁻⁶ /K

1000 – 2000°C 2.5 to 2.8 x10⁻⁶ /K

Stock sizes

Foil-faced Boards	1500mm	x	1000mm	x	40mm
	1000mm	x	500mm	x	40mm
	1000mm	x	500mm	x	20mm

Other sizes, sections and shapes available to order.

HF2000 RIGID FELT INSULATION BOARD

Uniform density, low thermal conductivity, rigid felt provides excellent temperature uniformity throughout the hot zone. It provides high wear resistance under the arduous conditions of modern pressure quench vacuum furnaces. Standard board has graphite foil on one side, with other face and edges sealed with graphite paint. The boards are fired to 2000°C after foiling and painting. For the ultimate in protection CFC is bonded to both faces. This is especially useful in bungs and moving parts.

TYPICAL PROPERTIES ARE:

Density	0.18	g/cc
Carbon Content	99.9	%
Volatiles	Nil	
Flexural Strength	1-1.3	MPa
Thermal conductivity (1000°C inert)	0.32-0.36	W/mK
Ash Content	<500	ppm
Processing temperature	2000	°C

HIGH TEMPERATURE SOFT FELT

Soft carbon and graphite felts are long time standards for use as thermal insulators in high temperature, vacuum furnaces and inert gas, electric furnaces. The low density of **Online Furnace** felt enhances performance by allowing your furnace to both heat up and cool down more rapidly thus resulting in more cycles per given period of time. Because of its lower and more uniform density, soft felt stabilizes the temperature in your hot zone and thus creates a more constant atmosphere. Once incorporated into your insulation package, soft felts will maximize your furnace's capability.

Online Furnace SOFT FELT PHYSICAL PROPERTIES

PROPERTY

	UNITS	CARBON	GRAPHITE
Carbon	%	97	99.9
Ash	%	0.5	0.1
Bulk Density	kg/m ²	3.42	3.42
Tensile Strength	lb/in wide	2.4	2.4
Specific Gravity	g/cc	1.85	1.45
Shrinkage	%	2-4	<1
Bursting Load	N	75.62	62.28
Thermal Conductivity W/mK			
	(1,000°C - Inert Gas)	0.16	0.20
Water Absorption	%	6	<1
Process Temperature	°C	1100	2400

SIZES

Thickness	3.2mm, 6.35mm, 12.7mm & 25.4mm
Nominal Width	1220mm

Graphite Foil

A flexible material that is uniform in density, purity and thickness. Graphite foil is excellent for hot pressing applications and is an excellent gasketing agent for temperatures ranging from -200°C to $+500^{\circ}\text{C}$ in oxidising environments. It is useful as a sealing agent for high pressure and ultra temperature transfer of water, gases, steam and corrosive chemicals.

TYPICAL PROPERTIES ARE:

1. Withstands temperatures up to 3000°C in reducing or inert atmospheres.
2. Self-lubricating and is manufactured without resins, binders or fillers to alter its chemical properties.
3. Excellent resistance to temperature changes and exhibits no cold or warm flow characteristics.
4. High anisotropy of electrical and thermal conductivity.
5. Excellent non-wetting properties to ceramics, glass and molten metals.

GENERAL APPLICATIONS :

1. Reflective and gas erosion protection for hot zones
2. Lining for graphite melting crucibles and moulds.
3. Sealing material for valves and shafts.
4. Fills imperfections on gasketing surfaces thus eliminating costly resurfacing.