

Manufacturer: Graphtek LLC

Method of Manufacturing: Hydrocarbon gas decomposition

Description: Pyrolytic Graphite (Substrate Nucleated) is a unique form of graphite manufactured by decomposition of a hydrocarbon gas at very high temperature in a vacuum furnace. The result is an ultra-pure product which is near theoretical density and extremely anisotropic. The material is grown onto a substrate giving it a layered composition. This also means it has different properties in different planes. In the C plane (across its layers) it has low thermal conductivity, acting as an insulator. In the A-B plane (with the layers) it has very high thermal conductivity, acting as a superb conductor. All values are taken at room temperature, unless noted otherwise.

PROPERTY	US VALUE		METRIC VALUE	
Density	0.079	lb/in ³	2.2	gr/cm ³
Flexural Strength - AB	13000	psi	89.6	mpa
Compressive Strength - AB	15000	psi	103.4	mpa
Compressive Strength - C	25000	psi	172.4	mpa
Shear Strength - AB	1000	psi	6.9	mpa
CTE - AB	0.8	in/in °F x 10 ⁻⁶	0.5	Microns/m °C
CTE - C	11	in/in °F x 10 ⁻⁶	6.5	Microns/m °C
Thermal Conductivity - AB	232	BTU/(h.ft ² °F/ft)	400	W/(m ² . K/m)
Thermal Conductivity - C	2	BTU/(h.ft ² °F/ft)	3.5	W/(m ² . K/m)
Resistivity (RT) - AB	0.2 * 10⁻³	ohmXinch	0.5 * 10⁻³	ohmXcm
Resistivity (1650C) - AB	0.1 * 10⁻³	ohmXinch	0.3 * 10⁻³	ohmXcm
Resistivity (RT) - C	0.2	ohmXinch	0.5	ohmXcm
Resistivity (1650C) - C	0.1	ohmXinch	0.3	ohmXcm
Oxidizing Atmosphere	1200	°F	649	°C