

# GRAFTech International

## ECW™ Graphite

GrafTech International is a global leader in graphite and carbon products. We enable customer leadership better and faster than our competition, through the creation, innovation and manufacture of carbon and graphite material science based solutions.

### Grade ECW™ Graphite

Grade ECW™ graphite is a highly purified, extruded graphite. Machined grade CS™-based material is halogen gas processed to typically less than 10 ppm.

### Typical Applications

- CZ silicon crystal growth parts
- Purified electronic fixturing
- Polysilicon seeds chucks
- Quartz processing

### Sizes

Post machining gas purification of finished shapes to <10 ppm total impurities.

<u>Typical Properties at Room Temperature</u>						
	<u>ENGLISH</u>	<u>WG</u>	<u>AG</u>	<u>METRIC</u>	<u>WG</u>	<u>AG</u>
Density	lbs/ft <sup>3</sup>	108		g/cm <sup>3</sup>	1.74	
Maximum Particle Size	inches	0.03		mm	0.76	
Specific Resistance	10 <sup>-4</sup> Ω in.	2.8	3.7	μΩm	7.1	9.4
Flexural Strength	psi	3050	2250	kg/cm <sup>2</sup>	215	160
Young's Modulus	10 <sup>6</sup> psi	1.59	1.20	kg/mm <sup>2</sup>	1120	840
Tensile Strength	psi	2150	1600	kg/cm <sup>2</sup>	150	110
Compressive Strength	psi	6600	6600	kg/cm <sup>2</sup>	470	470
Permeability	Darcy	0.05	0.04	Darcy	0.05	0.04
Hardness	Rockwell "R"	83		Rockwell "R"	83	
C.T.E. (to 100 °C)	10 <sup>-6</sup> /°F	1.4	2.2	10 <sup>-6</sup> /°C	2.5	3.6
Thermal Conductivity	BTU-ft/hr ft <sup>2</sup> °F	90	85	W/mK	160	145
Elemental Content	ppm	<10		ppm	<10	
Elemental Analysis	Ca	<2.0		Fe	<2.0	
	Al	<0.2		Ni	<0.2	
	Si	<2.0		Ti	<0.2	
	Mg	<0.2		Cu	nd	
	V	<0.2		B	nd	

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