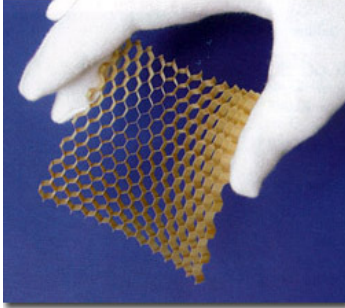


QUARTZ HONEYCOMB CORE

(rev. 051601)



Quartz Honeycomb is a low density low loss honeycomb core material specially designed for the use in spacecraft Synthetic Aperture Radar (SAR), Optical Sensor Systems, Radomes, low dielectric related applications and other structures which must be positioned with accuracy and stability in order to properly perform their intended purpose.

Quartz Honeycomb core is durable and easy to work with. We have found that there is a significant weight savings compared to foam. We've also had success in slicing the honeycomb core to 0.050 ± 0.002 " thickness.

Dielectric Properties

The dielectric constant and the loss tangent factor of Quartz are the most distinguished amongst all mineral fibers. Properties of UQF-105-1/4-3.0 honeycomb core test at average frequencies of 9.5 GHz:

Type	Average Frequency	Dielectric Constant along ribbon	Loss Tangent along ribbon	Dielectric Constant across ribbon	Loss Tangent across ribbon
UQF-105-1/4-3.0	9.5 GHz	1.042	0.00083	1.060	0.00036

Mechanical Properties

Ultracor Inc. manufactures a honeycomb core structure out of Astroquartz[®] fibers and space qualified Cyanate Ester resin (UQF-105-1/4-3.0). Mechanical properties are found in the table below.

Density	Comp. Strength	Comp. Modulus	"L" Shear Strength	"L" Shear Modulus	"W" Shear Strength	"W" Shear Modulus
pcf (g/cc)	psi (KPa)	ksi (MPa)	psi (KPa)	ksi (MPa)	psi (KPa)	ksi (MPa)
2.8 (0.045)	216 (1489)	14.8 (102)	175 (1207)	23.2 (160)	94 (648)	11.9 (82)

Thermal Properties

The Quartz Honeycomb core has a unique feature of low Coefficient of Thermal Expansion (CTE). Below are comparisons of CTE in the thickness direction of various honeycomb cores.

CTE

