Carbon Fiber/Nylon Composite Material Data

PRODUCT DESCRIPTION

Our carbon-fiber filled Nylon CF is ideal for conditions where heat is a concern and added strength a necessity. Nylon CF is our choice for motorsports, UAV, aviation, and aerospace applications. Nylon CF provides added strength compared to our standard Nylon 12 as well as improved heat deflection properties at elevated temperatures.

MECHANICAL PROPERTIES	VALUE	UNIT	TEST STANDARD
Flexural Modulus (XY)	3447/500	MPa/kpsi	ASTM D790
Izod Impact Strength Notched	54	J/m	ASTM D256
Izod Impact Strength Unnotched	110	J/m	ASTM D256
Heat Deflection Temp @ 0.45 MPa	178	°C	ASTM D648
Heat Deflection Temp @ 1.82 MPa	177	°C	ASTM D648
Volume Resistivity (22C, 50%RH, 500V)	7.8x10^14	ohm-cm	ASTM D257
Surface Resistivity (22C, 50%RH, 500V)	2.9x10^14	ohm	ASTM D257

3D DATA	VALUE	UNIT	TEST STANDARD
The properties of parts manufactured using laser sintering are due to their layer-by-layer production, to some extent direction dependent. This has to be considered with designing the part and defining the build orientation.			
Tensile Modulus (X Direction)	2896/420	MPa/kpsi	ASTM D638
Tensile Modulus (Y Direction)	2896/420	MPa/kpsi	ASTM D638
Tensile Strength (X Direction) Ultimate	66/9500	MPa/psi	ASTM D638
Tensile Strength (Y Direction) Ultimate	66/9500	MPa/psi	ASTM D638
Elongation at Break (X Y Direction)	3.6	%	ASTM D638

THERMAL PROPERTIES	VALUE	UNIT	TEST STANDARD
Melting Point	184	°C	ASTM D3418
Melting Flow Rate (3min, 5.0kg, 235C)	50/10	grams/min	ASTM D1238

OTHER PROPERTIES	VALUE	UNIT	TEST STANDARD
Density (Laser Sintered)	1.07	grams/CC	ASTM D792

CHARACTERISTIC

Processing –
Laser Sintering

Delivery Form –
Black

Chemical Resistance –
General Chemical Resistance

Manufacturer –
ALM (PA 601-CF)

Source: Advanced Laser Materials, LLC
Last Change: 2011-09-28

A FEW OF THE INDUSTRIES WE CURRENTLY SUPPORT:

- Military/Aviation
- Automotive (production vehicles)
- Architectural
- Motorsports (cars and motorcycles)
- Safety Systems (emergency response)
- Military
- Direct-Food-Contact, FDA-Compliant Products
- Sporting Goods
- Light and Heavy Manufacturing
- University Technology Departments
- The Art Community

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