

CRP Technology Windform® XT 2.0 Polyamide-Carbon Fiber Composite

Category : Polymer , Rapid Prototyping Polymer , Thermoplastic , Nylon , Nylon 12

Material Notes:

Processed by selective laser sintering (SLS). Windform® XT 2.0 is the evolution of the ground breaking high performance Windform® XT, the carbon fiber reinforced composite material, known for its mechanical properties, which made it particularly suitable in demanding applications such as motorsport sector, aerospace and UAV's. Windform® XT 2.0 is an innovative material, and replaces the Windform® XT, as the "Top Level" of the current Windform® range. Windform® XT 2.0 improves mechanical properties compared to "traditional" Windform® XT, while maintaining the same workability for Laser Sintering machines in order to better fulfill the needs of Additive Manufacturing required to produce end use parts and prototypes. Windform® XT 2.0 retains the matte black colour of the previous version and features improvements in mechanical properties: +8% in tensile strength, +22% in tensile modulus and +46% increase in elongation at break. Windform XT® 2.0 allows for the creation of accurate, reliable and durable prototypes and is perfect for functional applications. Sample applications: Windform® XT 2.0 is the high-tech material for Additive Manufacturing chosen by those working in the Motorsport, Automotive (suitable for example for components under the hood, such as intake manifolds and functional cooling ducts), Air (for components UAV, Unmanned Aerial Vehicle) Aerospace (useful also to create prototype satellite, such as the CubeSat) and Design, as it allows applications that are fully functional, as well as bench testing, or testing and racing on the track. Information provided by CRP Technology.

Order this product through the following link:

http://www.lookpolymers.com/polymer_CRP-Technology-Windform-XT-20-Polyamide-Carbon-Fiber-Composite.php

| Physical Properties | Metric | English | Comments |
|---------------------|------------|----------------------------|----------|
| Density | 1.097 g/cc | 0.03963 lb/in ³ | |

| Mechanical Properties | Metric | English | Comments |
|------------------------------|-------------------------|-----------------------------|---|
| Tensile Strength at Break | 83.84 MPa | 12160 psi | UNI EN ISO 527-1(97) and UNI EN ISO 527-2(97) |
| Elongation at Break | 3.8 % | 3.8 % | UNI EN ISO 527-1(97) and UNI EN ISO 527-2(97) |
| Tensile Modulus | 8.928 GPa | 1295 ksi | UNI EN ISO 527-1(97) and UNI EN ISO 527-2(97) |
| Flexural Strength | 133.0 MPa | 19290 psi | UNI EN ISO 14125: 2000 |
| Flexural Modulus | 7.338 GPa | 1064 ksi | UNI EN ISO 14125: 2000 |
| Izod Impact, Notched (ISO) | 5.30 kJ/m ² | 2.52 ft-lb/in ² | ISO 180:2000 |
| Izod Impact, Unnotched (ISO) | 19.26 kJ/m ² | 9.165 ft-lb/in ² | ISO 180:2000 |
| Charpy Impact Unnotched | 2.243 J/cm ² | 10.67 ft-lb/in ² | ISO 179-1:2007 |
| Charpy Impact, Notched | 0.472 J/cm ² | 2.25 ft-lb/in ² | ISO 179-1:2007 |

| Thermal Properties | Metric | English | Comments |
|---|----------|----------|------------------------|
| Melting Point | 179.3 °C | 354.7 °F | ISO 11357-2 |
| Deflection Temperature at 1.8 MPa (264 psi) | 173.4 °C | 344.1 °F | ISO 75-2 TYPE A |
| Vicat Softening Point | 176.1 °C | 349.0 °F | 10 N; ISO 306 TYPE A50 |

| Electrical Properties | Metric | English | Comments |
|-----------------------|----------------|----------------|--------------|
| Volume Resistivity | <= 1e+8 ohm-cm | <= 1e+8 ohm-cm | ASTM D257-93 |
| Surface Resistance | <= 1e+8 ohm | <= 1e+8 ohm | ASTM D257-93 |

| Descriptive Properties | Value | Comments |
|------------------------|-----------|-------------------|
| Color | Black | |
| Surface Finish | 1.8 Ra µm | After Finishing |
| | 6.0 Ra µm | After SLS Process |

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