CELSTRAN® CFR-TP PA66 CF60-02

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Celstran® CFR-TP PA66 CF60-02 is a 60% carbon fiber by weight polyamide 66 (nylon 66) continuous fiber (uni-directional) reinforced thermoplastic composite tape. This material exhibits a high strength-to-weight ratio, excellent toughness and impact resistance. It is well suited for industrial, automotive and sporting goods applications where weight, strength and toughness are critical, as well as higher thermal resistance of PA66 versus other nylon materials. Alternate tape widths and thicknesses may be available.

产品信息

纤维体积含量	48.7	%	ISO 11667
薄膜厚度	0.13	mm	ISO 16012
带宽	270	mm	ISO 16012
薄膜克重	197	g/m²	
纤维克重	118	g/m²	

机械性能

拉伸模量, Tape 0°	93700	MPa	ASTM D 3039 M
拉伸强度, Tape 0°	1930	MPa	ASTM D 3039 M
断裂伸长率, Tape 0°	1.8	%	ASTM D 3039 M
弯曲模量, Tape 0°	95200	MPa	ASTM D 790
弯曲强度, Tape 0°	1060	MPa	ASTM D 790
弯曲断裂应变, Tape 0°	1.27	%	ASTM D 790

热性能

熔融温度, 10°C/min	260	°C	ISO 11357-1/-3
玻璃化转变温度, 10°C/min	50	°C	ISO 11357-1/-3

其它性能

密度	1440	kg/m³	ISO 1183

特性

加工方法	热成型, 模压成型, 选择性增强

其他信息

模压成型

Processing

Celstran® CFR-TP Tape Laminate Processing Guidelines

Celstran® CFR-TP can be molded using a heated platen compression molding press. A hardened steel, aluminum or flexible tooling can be used depending on the application. The tool should be treated with a mold release prior to molding.

The molding cycle consists of the following steps:

1. The platens should be heated above the polymer matrix melt temperature.
2. The individual lamina should be constructed and placed in the tool to achieve the desired laminate reinforcement orientation.
3. The tool is placed between the platens and the platens are closed to achieve a contact pressure on the tool less than 30 psi (2 bar).

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4. The tool is allowed to rise in temperature until stabilizing at the initial temperature the platens were set to.
5. The pressure is increased to the desired amount and held for a recommended time.
6. Air and/or water cooling is initiated until the material reaches a temperature sufficiently below the melt and peak crystallization temperatures wherein the pressure is reduced to a contact pressure less than 15 psi (1 bar).
7. The tool is continually cooled until reaching a temperature, typically at or below the glass transition point, at which the pressure is completely removed and the part de-molded from the tool. It should be noted that the choice of tooling, geometry and heating/cooling mechanisms will greatly dictate processing conditions, and thus, optimization specific to the individual molders' capabilities is necessary. Additionally, the resin is what dictates the molding temperatures, whereas the sample thickness is what determines the time. As the thickness increases, the time at melt should also increase to account for the time for heat to conduct to the center of the laminate.

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Resin: PA66
Drying Time: 2 hours
Drying Temperature: 180°F, 82°C
Platen Temperature: 585°F, 307°C
Press Pressure: 84 psi, 5.8 bar
Time at Melt: 5 min
Cooling Rate: 15-30°F/min, 8-17°C/min
Material Removal Temperature: 125°F, 52°C

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