Toray Cetex® TC910 PA6

Toray Advanced Composites

PRODUCT DATA SHEET

DESCRIPTION

Toray Cetex® TC910 is a thermoplastic composite using a polyamide 6 (PA6) matrix resin. This product provides excellent mechanical performance at a good performance-to-weight ratio. It features high strength and wear resistance and performs well at elevated temperatures. As a result of these attributes, Toray Cetex® TC910 is commonly used in a variety of sporting goods, automotive, and transportation and general industrial applications. Secondary details in the final part may be injection overmolded using injection-grade polyamides. Toray Cetex® TC910 is available in glass or carbon reinforced UD tapes.

FEATURES

- **Excellent balance of strength and impact resistance**
- **Moldable and formable**
- **Excellent temperature resistance and strength makes it ideal for housings and under the hood applications**
- **Excellent impact and good solvent resistance**
- **Good elevated temperature resistance**

PRODUCT TYPE

Nylon 6-based Thermoplastic Composite

TYPICAL APPLICATIONS

- General Industry
- Sporting Goods
- Urban Air Mobility & Unmanned Aircraft Systems
- Automotive structure e.g. under the hood applications
- Replacement for highly loaded injection molded parts

SHELF LIFE

Indefinite at 25°C (77°F)

TYPICAL NEAT RESIN PROPERTIES

Heat Deflection Temperature	200°C (392°F)

Contact us for more information:

North America/Asia/Pacific
e explore@toraytac-usa.com
t +1 408 465 8500

Europe/Middle East/Africa
e explore@toraytac-europe.com
t +44 (0)1773 530899

Cetex®

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MECHANICAL PROPERTIES

Property	Condition	Method	Typical Results	
Tensile Strength 0°	RTD	ASTM D 3039	2068 MPa	300 ksi
Tensile Modulus 0°	RTD	ASTM D 3039	99.9 GPa	14.5 Msi
Compressive Strength 0°	RTD	ASTM D 6641	992 MPa	144 ksi
In-Plane Shear Modulus	RTD	ASTM D 3518	2.8 GPa	0.41 Msi
In-Plane Shear Strength (ult)	RTD	ASTM D 3518	145 MPa	21.1 ksi
In-Plane Shear Strength (5% strain)	RTD	ASTM D 3518	50 MPa	7.2 ksi
Mode I Interlaminar Fracture Toughness (G_{IC} Strain Energy Release Rate)	RTD	ASTM D 5528	81 MPa	11.8 ksi
Mode II Interlaminar Fracture Toughness G_{IIC} Strain Energy Release Rate)	RTD	ASTM D 7905	149 MPa	21.6 ksi
CAI (1500 in-lb/in)	RTD	ASTM 7136/7137	252 MPa	36.6 ksi

Toray Cetex® TC910 Nylon 6 Carbon Fiber Uni-directional Tape
Resin content by weight at 40%. Composite density 1.45 g/cm³.
Tape width 166 mm (6.5").Tape thickness 0.16 mm (0.007").
Recommended processing temperature is 249–271°C (480–520°F)

MECHANICAL PROPERTIES

Property	Condition	Method	Typical Results	
Tensile Strength 0°	RTD	ASTM D 3039	900 MPa	131 ksi
Tensile Modulus 0°	RTD	ASTM D 3039	30 GPa	4.4 Msi
Flexural Modulus 0°	RTD	ASTM D 790	29 GPa	4.2 Msi
Short Beam Shear ILSS	RTD	ASTM D 2344	42 MPa	6.1 ksi

Toray Cetex® TC910 Nylon 6 Fiberglass Uni-directional Tape
Resin content by weight at 40%. Composite density 1.73 g/cm³.
Tape width 166 mm (6.5").Tape thickness 0.25 mm (0.010").
Recommended processing temperature is 249–271°C (480–520°F)

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18255 Sutter Blvd.
Morgan Hill, CA 95037, USA
t +1 408 465 8500

2450 Cordelia Road
Fairfield, CA 94534, USA
t +1 707 359 3400

Amber Drive, Langley Mill
Nottingham, NG16 4BE, UK
t +44 (0)1773 530899

www.toraytac.com
explore@toraytac-usa.com (North America/Asia/Pacific)
explore@toraytac-europe.com (Europe/Middle East/Africa)