

PRODUCT DATA SHEET

DESCRIPTION

Toray Cetex® TC915 is a thermoplastic composite using a high performance polyamide matrix resin. This product provides exceptional mechanical properties higher than typical polyamide-based composites and Nylon materials. It is ideal for structural components under high stress conditions and performs well at elevated temperatures. Toray Cetex® TC915 also exhibits excellent resistance to water absorption with better solvent resistance than common polyamides. Toray Cetex® TC915 is available as carbon reinforced uni-directional tapes.

FEATURES

- ▶ Exceptional mechanical properties
- ▶ Excellent shear strength and stiffness
- ▶ Excellent resistance to water absorption
- ▶ Good high temperature stability
- ▶ Excellent producibility and formability
- ▶ Good chemical resistance



PRODUCT TYPE

High-Performance Polyamide (Nylon) Thermoplastic Composite
Carbon Fiber Reinforced Uni-Directional Tapes

TYPICAL APPLICATIONS

- ▶ High performance applications in general industry
- ▶ Sporting equipment
- ▶ Automotive structure e.g. under the hood applications
- ▶ Energy e.g. oil/gas & hydrogen
- ▶ Urban Air Mobility (UAM) & Unmanned Aircraft Systems (UAS)

SHELF LIFE

Indefinite at Room Temperature

TYPICAL NEAT RESIN PROPERTIES

Density (Specific Gravity)	1.21 g/cm ³
Tensile Strength	83 MPa (12 ksi)
Tensile Modulus	4.5 GPa (0.65 Msi)
Water Absorption (Saturation in water)	5.8%
Humidity Absorption (60% RH equilibrium)	3%
T _g (Glass transition temp.)	75°C (167°F)
T _m (Melt temp.)	243°C (469°F)
T _p (Processing temp.)	260 - 300°C (500-572°F)

PHYSICAL PROPERTIES - EXAMPLE

Fiber Areal Weight (FAW)	131gsm
Weight Per Ply (PAW)	215gsm
Fiber Content by Volume (FV)	50%
Tape Width	166 mm (6.5 in.)
Consolidated Ply Thickness	0.14 mm (0.006 in.)



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Cetex®

TORAY_CETEX_TC915_PDS_v1.1_2024-09-04

Page 1/2

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MECHANICAL PROPERTIES

TC915 Standard Modulus Carbon Fiber UD Tape				
Property	Condition	Method	Typical Results	
Tensile Strength 0°	RTD	ASTM D 3039	2179 MPa	316 ksi
Tensile Modulus 0°	RTD	ASTM D 3039	124 GPa	18 Msi
Flexural Strength 0°	RTD	ASTM D 7264	1510 MPa	219 ksi
Flexural Modulus	RTD	ASTM D 7264	103 GPa	15 Msi
Compressive Strength 0°	RTD	ASTM D 6641	1055 MPa	153 ksi
Compressive Modulus 0°	RTD	ASTM D 6641	122 GPa	17.7 ksi
In-Plane Shear Strength (ult)	RTD	ASTM D 3518	177 MPa	25.7 ksi
In-Plane Shear Strength (5% strain)	RTD	ASTM D 3518	79 MPa	11.4 ksi
In-Plane Shear Modulus	RTD	ASTM D 3518	4.2 GPa	0.61 ksi
Short Beam Shear ILSS	RTD	ASTM D 2344	76 MPa	11 ksi

Toray Cetex® TC915 Polyamide-based Carbon Fiber Uni-directional Tape (typical example)
 Fiber content by volume at 50%
 Composite density 1.56 g/cm³
 Room Temperature Dry (RTD)

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TORAY_CETEX_TC915_PDS_v1.1_2024-09-04 Page 2/2

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