

PRODUCT DATA SHEET



TENCATE ADVANCED COMPOSITES

TenCate Cetex® TC950 TW1000-TPU

PRODUCT TYPE

Carbon (12K) fiber content: 26%

Glass (330) fiber content: 26%

TPU/Modified PMMA thermoplastic resin (48%)

(Noted: Percentages are by volume and are nominal values)

TYPICAL APPLICATIONS

- Footwear
- Skates
- Recreational equipment

SHELF LIFE

Stable indefinitely at 77°F (25°C)

Materials must be dried prior to heating and thermoforming. Please refer to the TCPC Processing Instructions.

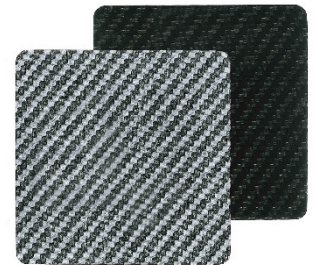
PRODUCT DESCRIPTION

TenCate Cetex® TC950 (TW1000-TPU) is a continuous fiber reinforced thermoplastic (CFRT®) composite laminate. It blends the benefits of a thermoplastic polymer alloy with woven carbon and glass fibers in a twill weave for enhanced shapes and performance. The TW1000-TPU style laminate is available in a single layer product; carbon in one direction and glass fibers at a 90° orientation to the carbon that is ultra thin, lightweight, and resilient for improved energy return.

ENVIR-Bond® (EB) is TCPC's material innovation to improve the ease of processing at the factory level and help reduce the amount of harmful solvents used in the footwear manufacturing process. EB "tie-layers" are added for injection over molding.

PRODUCT BENEFITS/FEATURES

- Twill weave of 12K carbon fibers and glass (330) fibers
- Bi-directional reinforcement
- Highest mechanical properties of our woven fabrics
- Lightest weight, thin single or multiple layers
- Available in various colors



Composition:

Fibers..... Woven (12K) carbon fibers and (330) glass fibers - twill weave, reinforcement at 0° and 90° orientations.

Resin TPU/PMMA impact modified proprietary thermoplastic resin.

Physical Attributes:

Thickness..... 0.039 inches (1.0 mm)

Color Various

Size..... Cut to customer specifications from sheet of 36 x 48 inches (910 x 1220 mm)

TENCATE CETEX® TC950 (TW1000-TPU)

MATERIAL PROPERTIES; METHOD ASTM D790-10

Property	Results	
Specific Gravity	1.64 g/cc	
Flexural Rigidity	8.2 lbs-in ²	24.1 N/cm ²
Flexural Strength	48.7 Msi	327 MPa
Flexural Modulus	1.7 ksi	11.4 GPa

TYPICAL CONSOLIDATION PARAMETERS OR PROCESSING INFO

Recommended Processing Temperatures.....Forming 195°C to 200°C (383°F - 392°F)

Bonding 55°C to 60°C (131°F - 140°F)

TENCATE PERFORMANCE COMPOSITES

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TENCATE ADVANCED COMPOSITES

TenCate Cetex[®] TC950 TW1000-TPU

TW1000 ENVIR-BOND[®]

ENVIR-BOND[®] PRODUCT IDENTIFICATION

Chemical Family:..... Aromatic thermoplastic polyurethane
Chemical Name:..... Polyurethane elastomer
Hazardous Components:..... This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200

ENVIR-BOND[®] PHYSICAL AND CHEMICAL PROPERTIES

Form Solid
Appearance Plastic Film
Color Natural
Odor Odorless
pH Not Applicable
Melting Point 150 - 200°C (302 - 392°F)
Boiling Point / Range Not Applicable
Flash Point > 210°C (> 410°F)
Lower Explosion Limit Not Established
Upper Explosion Limit Not Established
Vapor Pressure Not Applicable
Density Not Applicable
Specific Gravity 1.1 - 1.3
Solubility in Water Insoluble
Autoignition Temperature Not Applicable
Decomposition Temperature Begins at 250°C (482°F)
Hazardous Reactions Hazardous polymerization does not occur
Stability Stable

Revised 08/2015

Cetex[®] and CFRT[®] are registered trademarks of Royal TenCate. All data given is based on representative samples of the materials in question. Since the method and circumstances under which these materials are processed and tested are key to their performance, and TenCate Advanced Composites has no assurance of how its customers will use the material, the corporation cannot guarantee these properties.

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MASSACHUSETTS, NEW JERSEY OR PENNSYLVANIA RIGHT TO KNOW SUBSTANCE LISTS:

Weight %	Components	CAS - No.
>=1%	Polyurethane polyester elastomer	CAS# is a trade secret
>=1%	Thermoplastic Polyurethane	-

Note: Remove protective film from surface prior to processing

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