PRODUCT DATA SHEET

TENCATE ADVANCED COMPOSITES

TenCate Cetex® TC1225

Engineered PAEK resin system

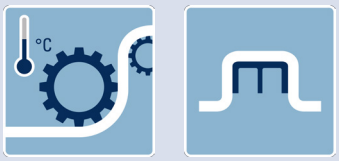
PRODUCT TYPE

PolyArylEtherKetone (PAEK) thermoplastic resin system

TYPICAL APPLICATIONS

- Aerostructures
- Aircraft interiors
- Metal replacement
- Medical
- Oil and gas

KEY PROPERTIES



Low temperature processable

Overmouldable

T_g ..... 147°C (296°F)

T_m ..... 305°C (581°F)

SHELF LIFE

Indefinite at 25°C (77°F)

PRODUCT DESCRIPTION

TenCate Cetex® TC1225 is an engineered thermoplastic composite material, utilizing a semi-crystalline engineered polyarlyetherketone (PAEK) resin for excellent mechanical performance and lower processing temperatures.

The distinctive value of TenCate Cetex® TC1225 over other composites with a PAEK family matrix is the reduction in processing temperature by 50 - 75°C*. This enables TenCate Cetex® TC1225 to be processed on machines with a lower temperature range, potentially reducing investment costs in both machines and tooling. The lower processing temperature speeds up cycle times; due to shorter heat-up and cooling cycles, using less energy in the process.

Additionally, TenCate Cetex® TC1225 is an ideal composite to be overmoulded with neat or short fibre reinforced PEEK resin, creating a very strong bond. Overmoulding, integrating long fibre reinforced composites in an injection moulding process, combines the strength of high-end composites with the design freedom and complexity of injection moulding parts.

TenCate Cetex® TC1225 is available as a reinforced thermoplastic laminate (RTL), a fabric based semi-preg and a UD tape, all manufactured from Victrex's newest polymer matrix and high strength carbon fabric reinforcement.

* Standard PEEK processes at temperatures up to 400°C

TENCATE CETEX® TC1225 PRODUCT BENEFITS / FEATURES

- Improved and cost effective processing temperatures at relatively low processing temperatures (325 - 350°C)
- Form freedom - suited for overmoulding with neat or short fibre reinforced PEEK
- Excellent mechanical performance
- Good performance at elevated temperatures
- Excellent toughness and compression after impact (CAI) resistance of 45.6 ksi
- Excellent solvent resistance
- Very low moisture absorption
- Excellent FST performance

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TENCATE ADVANCED COMPOSITES

TenCate Cetex® TC1225

Engineered PAEK resin system

PHYSICAL / THERMAL PROPERTIES - TENCATE CETEX® TC1225 SEMIPREG

Property	Value
Mass of fabric	277 g/m^2 (8.17 oz/yd^2)
Mass of fabric + resin	478 g/m^2 (14.1 oz/yd^2)
Resin content by volume	50%
Resin content by weight	42%
Ply thickness	0.31 mm (0.0122 in)
Specific gravity	1.54 g/cm^3 (96.14 lb/ft^3)
T_g (DSC)	147°C (296°F)
T_m	305°C (581°F)

MECHANICAL PROPERTIES - TENCATE CETEX® TC1225 RTL

Carbon T300JB 3K, 5 Harness Satin, 277gsm FAW, 42% RC (50% by volume)

Property	Condition	Methods	Results	
Tensile strength 0°	RTD	EN 2597B	805 MPa	117 ksi
Tensile modulus 0°	RTD	EN 2597B	58 GPa	8.45 Msi
Tensile strength 90°	RTD	EN 2597B	739 MPa	107 ksi
Tensile modulus 90°	RTD	EN 2597B	59 GPa	8.56 Msi
In plane shear strength	RTD	ASTM D3518	147 MPa	21.3 ksi
In plane shear modulus	RTD	ASTM D3518	4.1 GPa	0.59 Msi
Compression strength 0°	RTD	ASTM D6641	628 MPa	91.1 ksi
Compression modulus 0°	RTD	ASTM D6641	52 GPa	7.61 Msi
Compression strength 90°	RTD	ASTM D6641	676 MPa	98.1 ksi
Compression modulus 90°	RTD	ASTM D6641	53 GPa	7.62 Msi
Flexural strength 0°	RTD	EN 2562A	1040 MPa	151 ksi
Flexural modulus 0°	RTD	EN 2562A	60 GPa	8.76 Msi
Flexural strength 90°	RTD	EN 2562A	879 MPa	127 ksi
Flexural modulus 90°	RTD	EN 2562A	48 GPa	6.95 Msi
Compression after impact (30 J)	RTD	ASTM D7137-12	314 MPa	45.6 ksi
Fracture toughness mode 1 (GI_c)	RTD	ASTM D5528	2249 J/m^2	12.8 in-lb/in^2

The mechanical data provided are indicative values only
TenCate fabric style reference CD0286 = High strength carbon T300JB fibre, 5 Harness Satin weave, 277gsm FAW
PAEK = PolyArylEtherKetone resin

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TENCATE ADVANCED COMPOSITES

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