Toray Cetex® MC1322 PEKK

Toray Advanced Composites

PRODUCT DATA SHEET

DESCRIPTION

Toray Cetex® MC1322 PEKK is a thermoplastic bulk molding compound (BMC) fabricated from Toray Cetex® TC1320 PEKK thermoplastic uni-directional tape. It is based on a semi-crystalline PEKK thermoplastic polymer and as such has excellent resistance to chemicals and solvents, while also offering excellent elevated service performance, good hot/wet strength, and offers superior performance in flammability properties.

Toray Cetex® MC1322 PEKK is offered on standard-modulus carbon fibers in lengths of up to 25.4 mm (1”). Intermediate modulus fibers and alternative lengths may also be available. Thermoplastic bulk molding compound allows part fabrication with short cycle times. This product also allows complex shapes to be made with varying wall thicknesses, integrated ribs, and reinforcing structures. Compression molded parts are used to replace metal parts for weight savings.

FEATURES

- **Excellent resistance to chemicals and solvents**
- **Excellent elevated temperature service performance**
- **Allows easy fabrication of complex shapes**
- **Good hot/wet strength**
- **Remoldable**

PRODUCT TYPE

Polyether-ketone-ketone (PEKK) Thermoplastic Bulk Molding Compound

TYPICAL APPLICATIONS

- Aircraft interiors
- Aircraft brackets and ribs
- Primary flight structure
- Secondary flight structure
- Access panels, conduit, flooring

SHELF LIFE

Indefinite at 25°C (77°F)

TYPICAL NEAT RESIN PROPERTIES

Density	1.29 g/cc
Glass Transition Temperature	162°C (324°F)
Melt Temperature	331°C (628°F)
Recommended Processing Temp	380°C (715°F)
Tensile Strength	110 MPa (16 ksi)
Tensile Modulus	3.8 GPa (550 ksi)
Elongation at Yield	5.20%
Compression Strength	149 MPa (21.6 ksi)
Compression Modulus	3.8 GPa (550 ksi)
Flex Strength	68 MPa (24.4 ksi)
Flex Modulus	3.9 GPa (570 ksi)
CTE	24 ppm/°K (13 ppm/°F)

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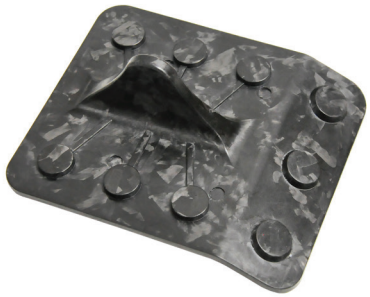
LAMINATES FABRICATED WITH TORAY CETEX® MC1322 (PEKK) AS4D CHOPPED MOLDING MATERIAL. CHIP SIZE IS 1.6 mm X 12.7 mm (1/16" X 1/2")

Property	Condition	Method	Typical Results	
Flexural Strength	RTD	ASTM D 6272	541 MPa	79 ksi
Flexural Modulus	RTD	ASTM D 6272	38.8 GPa	5.6 Msi
Open-Hole Tension Strength	RTD	ASTM D 5766	291 MPa	42 ksi
Open-Hole Tension Modulus	RTD	ASTM D 5766	47 GPa	6.8 Msi
Open-Hole Compression Strength	RTD	ASTM D 6484	268 MPa	39 ksi
Open-Hole Compression Modulus	RTD	ASTM D 6484	37.7 GPa	5.5 Msi
Bearing Strength	RTD	ASTM D 5961	820 MPa	119 ksi

TYPICAL CONSOLIDATION PARAMETERS:

Toray Cetex® MC1322 PEKK Thermoplastic BMC Molding Guidelines

1. Pre-weigh the desired amount of molding compound
2. Apply high temperature resistant mold release to mold cavity
3. Distribute molding compound in mold cavity as desired (bulk factor is approximately 6 to 1)
4. Heat mold or material to a minimum of 380°C (715°F)
5. Apply one or more "debulk" pressure cycles as required (optional step)
   Apply pressure to 500 psi (34 bar), release, repeat as necessary
6. Consolidation Cycle: Pressurize to 500–1000 psi (34–68 bar). Hold until all material has reached a minimum temperature of 380°C (715°F) for 0–2 minutes
7. Cool Cycle: Cool mold under pressure at 5–20°C/minute to maintain crystallinity for best solvent resistance. Release pressure when part temperatures is below material T_g 162°C (324°F).



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