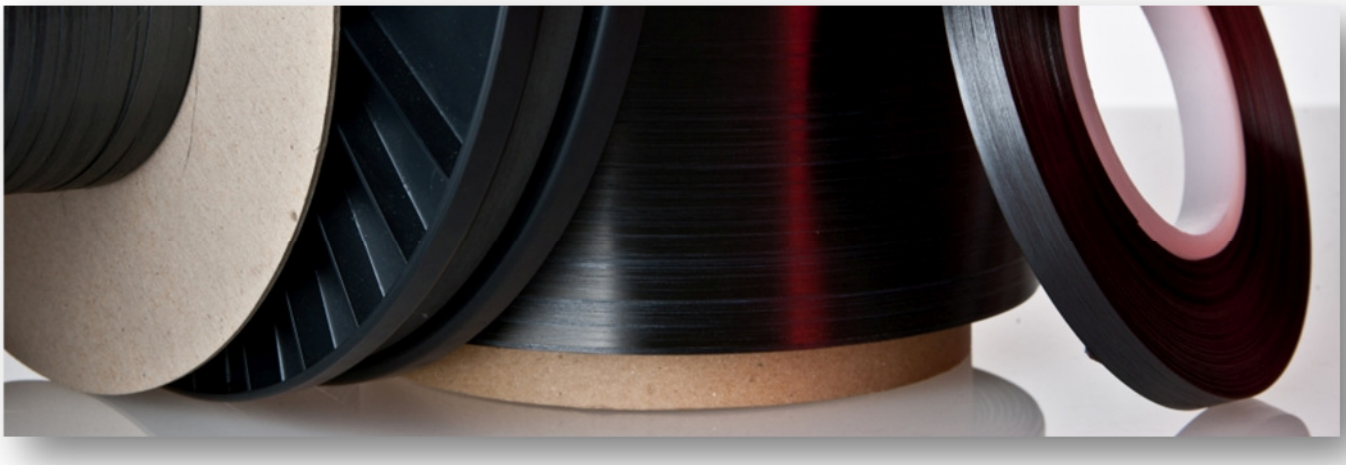
Tenax®-E TPUD PEEK-HTS45

Product Data Sheet

Tenax®-E TPUD PEEK-HTS45 is a thermoplastic unidirectional prepreg (TPUD) which combines two high-performance materials. The polymer matrix of PEEK (polyetheretherketone) offers excellent resistance to chemicals and solvents. The utilisation of Tenax®-E HTS45 – a high tenacity carbon fiber manufactured with a tailored sizing for thermoplastics applications – results in a combination of materials offering an outstanding composite material performance.



Product Benefits

- high-performance mechanical properties
- continuous use at elevated temperature
- low flammability, smoke and toxicity
- resistant to chemicals and solvents
- room temperature storage and shipping
- compliant to Health, Safety and Environment requirement
- biocompatible (comply with ISO 10993-5)
- recyclable

Process Benefits

- out of autoclave consolidation (press forming, vacuum bagging, tape winding)
- short cycle time
- thermoformable
- automated process (AFP, ATL)
- thermoplastic joining technologies

Tenax®-E TPUD PEEK-HTS45

Brand name	**Tenax®**	
Production site	**E (Europe)**	
Product name	**TPUD PEEK-HTS45**	
Product designation	**Tenax®-E TPUD PEEK-2-34-HTS45 P12 12K-UD-145**	
Fiber	**Tenax®-E HTS45 12K**	Density: 1.77 g/cm³
Matrix	**PEEK** (Polyetheretherketon)	Density: 1.30 g/cm³

Semi-finished product

Prepreg areal weight	220 g/m²
Fiber areal weight	145 g/m²
Matrix content	34 wt%
Nominal thickness 5.512 mil	0.14 mm
Width 1/4" to 12"	6.35 mm to 304.8 mm

Thermoforming recommendations

Consolidation temp. 734 ±50 °F	390 ±10 °C
Consolidation pressure 290 ±145 psi	20 ±10 bar
Consolidation time	20 ±10 min

Properties (test direction)		Conditioning / Test temperature	Typical value	
Glass transition temperature	onset	23 °C, 50 % r.h./ 23 °C, 50 % r.h	143 °C	289 °F
Tensile (0°) DIN EN 2561 Type B	modulus	23 °C, 50 % r.h./ 23 °C, 50 % r.h	141 GPa	20.5 Msi
	strength		2270 MPa	329.3 ksi
Tensile (90°) DIN EN 2597 Type B	strength	23 °C, 50 % r.h./ 23 °C, 50 % r.h	88 MPa	12.8 ksi
Compression (0°) EN 2850 Type A3	modulus	23 °C, 50 % r.h./ 23 °C, 50 % r.h	130 GPa	18.9 Msi
	strength		1545 MPa	224.1 ksi
Flexure (0°) DIN 2562 Type A	modulus	23 °C, 50 % r.h./ 23 °C, 50 % r.h	130 GPa	18.9 Msi
	strength		1760 MPa	255.3 ksi

All data given are typical values representative of the material. Properties may vary depending on samples preparation and test methods. Hence, Teijin cannot guarantee these properties.

Please take into consideration that the export or transfer of carbon fiber products can be subject to authorization, depending on end-use and final destination.