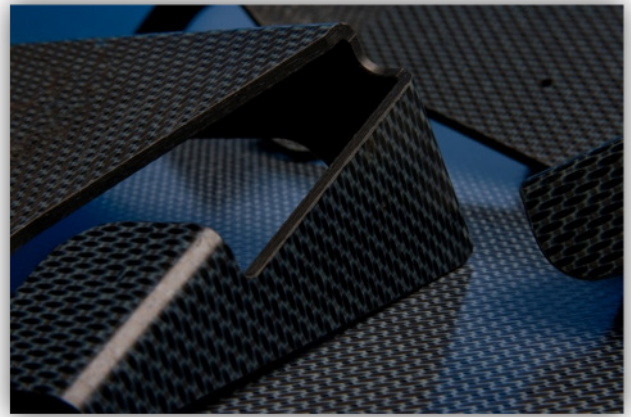
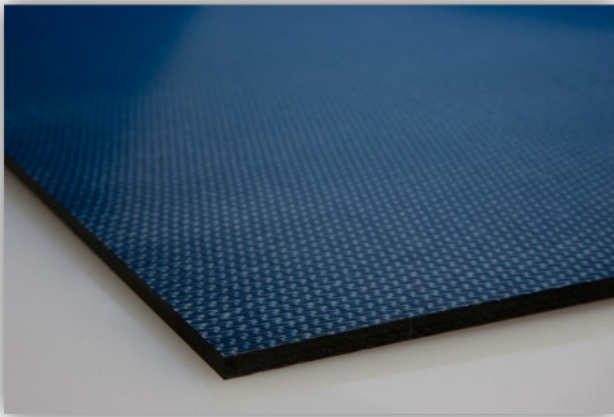


**Tenax®-E TPCL PEEK-HTA40** is a thermoplastic consolidated laminate (TPCL) made of several layers of thermoplastic powdered woven fabric. The powdered woven fabric is composed of the high tenacity carbon fiber product Tenax®-E HTA40 E13 3K 200tex and a PEEK matrix. The consolidated laminate can be simply heated above its melting temperature and then stamped in a metallic mould within a press in a few minutes.



**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 requirements
- biocompatible (comply with ISO 10993-5)
- recyclable

**Process Benefits**

- thermoformable (press forming)
- short cycle time
- large volume application
- automated process (pick and place)
- thermoplastic joining technologies

**Dimensions**

|                            |  |
|----------------------------|--|
| <b>Laminate dimension:</b> | 800 mm x 1200 mm (warp x weft)   |
| <b>Laminate thickness:</b> | multiple of 0.31 mm<br>(typically 1.86 mm to 4.34 mm (see product list)) |
| <b>Stacking sequence:</b>  | standard stacking sequence available (see product list)                  |

**Tenax® -E TPCL PEEK-HTA40**

|                            |   |
|----------------------------|---|
| <b>Brand name</b>          | <b>Tenax®</b>   |
| <b>Production site</b>     | <b>E (Europe)</b>                                       |
| <b>Product name</b>        | <b>TPCL PEEK-HTA40</b>                                  |
| <b>Product designation</b> | <b>Tenax® -E TPCL-PEEK-4-40-HTA40 E13 3K DT-5HS-285</b> |

|               |                                   |                                 |
|---------------|-----------------------------------|---------------------------------|
| <b>Fiber</b>  | <b>Tenax® -E HTA40 3K</b>         | Density: 1.76 g/cm <sup>3</sup> |
| <b>Matrix</b> | <b>PEEK (Polyetheretherketon)</b> | Density: 1.30 g/cm <sup>3</sup> |

**Semi-finished product**

|   |                      |
|---|----------------------|
| Fabric  | 5HS                  |
| Prepreg areal weight                            | 485 g/m <sup>2</sup> |
| Fiber areal weight                              | 285 g/m <sup>2</sup> |
| Matrix content                                  | 42 wt%               |
| Nominal thickness<br>(52 % FVC <sup>(1)</sup> ) | 0.31 mm<br>12.2 mil  |

<sup>(1)</sup> FVC = Fiber Volume Content

**Thermoforming recommendations**

|               |                |                              |
|---------------|----------------|------------------------------|
| Heating       | dwelt temp.    | 390 ± 30 °C<br>734 ± 86 °F   |
|               | dwelt time     | ≤ 5 min                      |
| Consolidation | temperature    | 20 – 390 °C<br>68 – 734 °F   |
|               | time           | ≤ 5 min                      |
|               | pressure       | 25 ± 15 bar<br>363 ± 218 psi |
| Cooling       | cool-down rate | ≤ 120 °C/min<br>≤ 248 °F/min |

| Properties (test direction)                             |          | Conditioning /<br>Test temperature   | Typical value |           |
|---|----------|--------------------------------------|---------------|-----------|
| Melting point   | Peak     | DSC                                  | 343 °C        | 649 °F    |
| Glass transition temperature                            | onset    | 23 °C, 50 % r.h./<br>23 °C, 50 % r.h | 143 °C        | 289 °F    |
| Tensile <sup>(2)</sup> (warp, 0°)<br>ISO 527-4          | modulus  | 23 °C, 50 % r.h./<br>23 °C, 50 % r.h | 60 GPa        | 8.7 Msi   |
|   | strength | 23 °C, 50 % r.h                      | 963 MPa       | 139.7 ksi |
| Compression <sup>(2)</sup> (warp, 0°)<br>EN 2850 Type B | modulus  | 23 °C, 50 % r.h./<br>23 °C, 50 % r.h | 59 GPa        | 8.6 Msi   |
|   | strength | 23 °C, 50 % r.h                      | 725 MPa       | 105.2 ksi |
| Flexural (warp, 0°)<br>EN 2562 Type A                   | modulus  | 23 °C, 50 % r.h./<br>23 °C, 50 % r.h | 64 GPa        | 9.3 Msi   |
|   | strength | 23 °C, 50 % r.h                      | 1166 MPa      | 169.1 ksi |

<sup>(2)</sup> normalised to nominal thickness (0.31mm)  
Stacking sequence: (0,90)<sub>3</sub>/(0,90)<sub>3</sub>

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.