FORMULA 1, MOTORSPORT, AND HIGH-PERFORMANCE AUTOMOTIVE
Composite Materials Selector Guide

DESIGNED TO FLY. WINNING ON THE GROUND.
TenCate Advanced Composites, part of the Toray Group, is a global leader in the development and manufacture of a wide range of advanced composite material solutions for high-performance industrial and aerospace markets. With 30 years of supporting the unique demands of the Formula 1, supercar, and high-performance automotive markets, TenCate is the ideal specialty automotive program partner. Our unique product portfolio spans both thermoset and thermoplastic technologies, including tooling materials, highly cosmetic surfacing materials, and structural prepregs for chassis and body panel applications. Our material solutions can be tailored to processing, design, and commercial considerations.

**PLANNING FOR THE FUTURE – EXPANSION OF THERMOSET AND THERMOPLASTIC CAPABILITY**

**FORMULA 1 AND MOTORSPORT**
Formula 1 pushes the boundaries of material science, fully utilizing even the smallest advantages. With the latest generation of fibers and resins available, TenCate is testing the limits of speed.

TenCate is a proven leader in aerospace grade material technologies for the Formula 1 and high-performance motorsport markets. Trusted for innovation in advanced composites for 30 years, TenCate continually invests in product development, ensuring a full portfolio of lightweight, durable, and high performance thermoset materials developed specifically for rigorous motorsport applications.

Coupled with dedicated mechanical testing capabilities, flexible lead times, and ready supply, TenCate is your winning partner in high performance motorsport.

**HIGH PERFORMANCE AUTOMOTIVE**
In response to tighter CO₂ emission controls, automobile manufacturers seek lightweight materials to increase efficiency. Auto design leaders have discovered composites offer a 30% lighter structure compared to aluminum, and 70% lighter compared to steel.

With 30 years of supporting the unique demands of the supercar and high-performance automotive markets, TenCate is the ideal specialty automotive program partner. Our unique product portfolio spans thermoset and thermoplastic technology, including tooling materials, highly cosmetic surfacing materials, and structural prepregs for chassis and body panel applications.

Advanced composite materials are not only strong and lightweight: facilitating reduced fuel consumption, but also promote an energy-efficient and cleaner solution for high-performance automotive applications. Composites are literally paving the road for the next generation automobile.
The full suite of products from low- to high-temperature curing prepregs are utilized within motorsport. Low-temperature curing epoxies are staple products for prototyping and wind tunnel testing. Mid-temperature curing epoxies are especially suited for structural components. Cyanate esters are resistant to high temperatures and durable in the most challenging environments.

TenCate thermoset materials are available in High-Strength, Intermediate, and High-Modulus carbon fibers. In addition, glass and aramid fibers are available in UD, woven, and multi-axial (NCF) reinforcements.

**LOW-TEMPERATURE CURING PREPREGS**

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Resin Type</th>
<th>Tg</th>
<th>Typical Cure Time/ Cure Temperature</th>
<th>Description of Properties</th>
<th>Application Examples</th>
<th>Fabric</th>
<th>UD</th>
</tr>
</thead>
<tbody>
<tr>
<td>TenCate E650</td>
<td>Epoxy</td>
<td>121°C (250°F)</td>
<td>3.5 hours at 70°C (158°F)</td>
<td>Medium tack level, easier lamination</td>
<td>Wind tunnel prototyping</td>
<td>○</td>
<td></td>
</tr>
</tbody>
</table>

**MID TEMPERATURE CURING PREPREGS**

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Resin Type</th>
<th>Tg</th>
<th>Typical Cure Time/ Cure Temperature</th>
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<th>Application Examples</th>
<th>Fabric</th>
<th>UD</th>
</tr>
</thead>
<tbody>
<tr>
<td>TenCate E720</td>
<td>Epoxy</td>
<td>110°C (230°F)</td>
<td>60 minutes at 120°C (248°F)</td>
<td>Honeycomb bondable</td>
<td>Ambient structural</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>TenCate E745</td>
<td>Epoxy</td>
<td>118°C (244°F)</td>
<td>60 minutes at 130°C (275°F)</td>
<td>High toughness and impact properties</td>
<td>Side impact structures, F1 nose cones</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>TenCate E722</td>
<td>Epoxy</td>
<td>120°C (248°F)</td>
<td>60 minutes at 120°C (248°F)</td>
<td>Excellent drapability, Greater rigidity</td>
<td>Monolithic parts</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>TenCate E721-FR</td>
<td>FR Epoxy</td>
<td>120°C (248°F)</td>
<td>60 minutes at 130°C (248°F)</td>
<td>Fire retardant version of E720</td>
<td>Internal bodywork</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>TenCate E721</td>
<td>Epoxy</td>
<td>140°C (284°F)</td>
<td>60 minutes at 125°C (257°F)</td>
<td>High cosmetic clarity</td>
<td>Center console</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>TenCate E750</td>
<td>Epoxy</td>
<td>148°C (298°F)</td>
<td>60 minutes at 130°C (275°F)</td>
<td>Variable temperature cure, starting at 80°C (176°F)</td>
<td>High impact areas, bodywork</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>TenCate TC250-1</td>
<td></td>
<td>191°C (378°F)</td>
<td>2 hours at 177°C (350°F)</td>
<td>Highly toughened with high interlaminar performance</td>
<td>High impact areas e.g. chassis</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>TenCate TC280</td>
<td>Epoxy</td>
<td>200°C (392°F)</td>
<td>2 hours at 177°C (350°F)</td>
<td>Highly toughened with high interlaminar performance</td>
<td>High impact areas e.g. chassis</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>TenCate E760</td>
<td>Epoxy</td>
<td>204°C (397°F)</td>
<td>2 hours at 180°C (358°F)</td>
<td>High temperature resistance and high mechanical performance</td>
<td>High-temperature e.g. rear suspension</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

**HIGH SERVICE TEMPERATURE**

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Resin Type</th>
<th>Tg</th>
<th>Typical Cure Time/ Cure Temperature</th>
<th>Description of Properties</th>
<th>Application Examples</th>
<th>Fabric</th>
<th>UD</th>
</tr>
</thead>
<tbody>
<tr>
<td>TenCate RS-8HT</td>
<td>BMI</td>
<td>255°C (495°F)</td>
<td>2 hours at 204°C (400°F), followed by post cure of 6 hours at 230°C (450°F)</td>
<td>Thermal stability, moderate toughness with good moisture resistance, available in RTM resin form</td>
<td>Rear structural components</td>
<td>○</td>
<td></td>
</tr>
<tr>
<td>TenCate TC420</td>
<td>Cyanate ester</td>
<td>321°C (610°F)</td>
<td>3 hours at 177°C (350°F), followed by 260°C (500°F) post cure</td>
<td>Excellent thermal stability, resistance to microcracking</td>
<td>Gearbox</td>
<td>○</td>
<td></td>
</tr>
<tr>
<td>TenCate C740</td>
<td>Cyanate ester</td>
<td>325°C (617°F)</td>
<td>2 hours at 130°C (275°F), followed by 380°C (716°F) post cure</td>
<td>High-temperature resistance and longer out life for larger parts</td>
<td>Pipework and ducting, exhaust area</td>
<td>○</td>
<td></td>
</tr>
<tr>
<td>TenCate C640</td>
<td>Cyanate ester</td>
<td>335°C (635°F)</td>
<td>10 hours at 80°C (176°F), followed by 380°C (716°F) post cure</td>
<td>High-temperature resistance and variable temperature cure</td>
<td>Brake ducts</td>
<td>○</td>
<td></td>
</tr>
</tbody>
</table>

Full mechanical data is available. Please call us at TenCate Advanced Composites (UK) to discuss your requirements.
MOTORSPORT PRODUCT APPLICATIONS

1. Bodywork manufactured from TenCate E740
   - SMOOTH SURFACE

2. Floor panel with TenCate E750 and E760 for ease of lamination and handling
   - DRAPABLE
   - LIGHTWEIGHT

3. Nose cone manufactured from TenCate E745
   - ENERGY ABSORBING
   - Bondable to core

4. Gearbox made with TenCate TC420
   - HIGH TEMPERATURE RESISTANT
   - FRACTURE TOUGHNESS

5. TenCate E745, approved side impact protection material for increased driver safety
   - ENERGY ABSORBING
   - IMPACT RESISTANCE

6. Suspension parts made from TenCate E786
   - HIGH TEMPERATURE RESISTANT
   - STRONG
   - EURY

7. TenCate E750, approved side impact protection material for increased driver safety
   - IMPACT RESISTANCE
   - IMPACT ABSORBING

8. Gearbox made with TenCate TC420
   - HIGH TEMPERATURE RESISTANT
   - FRACTURE TOUGHNESS
**Complete Tool Design Freedom**
With more than 20 years of pedigree in high-performance motorsport, the TenCate AmberTool® collection of prepregs comprised of the HX, HXR, and TC40 series, is sold globally by a proven team of tooling experts. Our comprehensive range of tooling products allows our customers complete tool design freedom and flexibility.

**TENCATE AMBERTOOL® Composite Tooling Prepregs**

TenCate AmberTool® composite tooling prepregs allow high precision for molded and machined tooling applications with a superior degree of accuracy. We support our products globally, offering customers a complete technical support service including tailored training courses.

**Master and Surface Coat Application**
- Compatible with high-performance epoxy paste and block master patterns
- Specialized sealing and release agent recommendations
- Excellent surface finish generation

**Full Tooling Delivery Solutions**
- Custom cutting solutions within Europe
- Fast delivery solutions for standard materials
- Wide range of carbon and glass reinforcements
- Surface machinable for final accuracy
- Carbon and glass backing structures

**Experienced Technical Support**
- Proven processing procedures and full tooling processing guide available
- Tailored training courses offered
- Specialized tooling knowledge on surface treatments and advanced experience in mold heating applications
- Mold life-cycle maintenance control
- New materials research, assuring health and safety compliance

**TENCATE AMBERTOOL® Composite Tooling Prepregs**

**New Products**
TenCate AmberTool® HXR56 is the latest innovation from our heritage range of composite tooling prepregs. The new TenCate AmberTool® HXR series is a multi-axial format, specifically designed for when complexity and speed are required, ultimately reducing overall tooling costs.

**Example of HXR lay-up:**
2 Plies HXR 200 gsm 2x2 Twill

For more product information, please refer to our app, our website www.tencate.composites.com/tooling, and our online resource center for processing information, also available in print copy.

*TenCate AmberTool® TC40 country of shipment is North America*
TENCIATE MICROPLY FILM ADHESIVES

TenCate offers a wide range of film adhesives compatible with our prepregs. TenCate MicroPly film adhesives are used for bonding honeycomb skin to core, and to bond pre-cured or post-cured laminates.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Resin Type</th>
<th>Tg (Onset)</th>
<th>Cure Temp</th>
<th>Key Product Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>TenCate EF8020</td>
<td>Epoxy</td>
<td>102°C (215°F)</td>
<td>80°C (176°F)</td>
<td>Wide cure temperature between 70-130°C (158-266°F)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30 days out life</td>
</tr>
<tr>
<td>TenCate EF72</td>
<td>Epoxy</td>
<td>112°C (234°F)</td>
<td>120°C (248°F)</td>
<td>Structural epoxy film adhesive with 30 days out life</td>
</tr>
</tbody>
</table>

HONEYCOMB CORE

TenCate Advanced Composites (UK), has the largest independent core processing operation in Europe. Aluminum and Nomex® honeycomb are available in addition to Flex-Core®. We hold extensive stock in house for quick ordering. All orders are cut to customer specification and are available with fast turnaround times.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Configurations</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Honeycomb - Aerospace Grade</td>
<td>3.1-1/8-07N-5052</td>
<td>• High strength-to-weight properties at relatively low cost</td>
</tr>
<tr>
<td></td>
<td>4.5-1/8-10N-5052</td>
<td>• Structural aerospace grade aluminum honeycomb available in 5052 and 5056 alloy</td>
</tr>
<tr>
<td></td>
<td>5.2-1/4-20N-5052</td>
<td>• Sheet size 1250 x 2500 mm except *1220 x 2440 mm</td>
</tr>
<tr>
<td>Nomex® Honeycomb - Aerospace Grade</td>
<td>ANA-3.2-29 3.2mm 29 kg/m³</td>
<td>• Fire resistant and self-extinguishing to FAR 25.583</td>
</tr>
<tr>
<td></td>
<td>ANA-3.2-48 3.2mm 48 kg/m³</td>
<td>• High temperature strength up to 180°C (356°F)</td>
</tr>
<tr>
<td></td>
<td>ANA-3.2-64 3.2mm 64 kg/m³</td>
<td>• Nomex® paper sheets are coated and bonded together with a high modulus phenolic resin</td>
</tr>
<tr>
<td></td>
<td>ANA-4.8-48(XX) 4.8mm 48kg/m³</td>
<td>• Sheet size 1250 x 2500 mm except *1220 x 2440 mm</td>
</tr>
<tr>
<td>Nomex® Honeycomb - Commercial Grade</td>
<td>ANC-3.2-48 3.2mm 48kg/m³</td>
<td>• Fire resistant and self-extinguishing</td>
</tr>
<tr>
<td></td>
<td>ANC-4.8-48 4.8mm 48kg/m³</td>
<td>• Good thermal and electrical insulating properties</td>
</tr>
<tr>
<td></td>
<td>ANC-4.8-48(OX) 4.8mm 48kg/m³</td>
<td>• Sheet size 1250 x 2500 mm</td>
</tr>
<tr>
<td>Aluminum Flex-Core®</td>
<td>9052/F80-0012N Density 4.3</td>
<td>• Unique cell configurations that permit small radii of curvature without deformation of the cell walls or loss of mechanical properties</td>
</tr>
<tr>
<td></td>
<td>9052/F80-0014N Density 8.0</td>
<td>• For parabolic, spherical, and cylindrical shapes</td>
</tr>
<tr>
<td></td>
<td>9056/F80-0014N Density 4.3</td>
<td>• Sheet size 910 x 1220 mm</td>
</tr>
</tbody>
</table>

NEW PRODUCTS

TenCate MicroPly syntactics are epoxy films loaded with glass microspheres for low-density and high-compressive strengths. TenCate’s Amilite and Amspand line of syntactic films are ideal for sandwich core construction, edge close outs, core splices, and reinforcement areas.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Resin Type</th>
<th>T (Onset)</th>
<th>Cure Temp</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TenCate Amilite SC12A</td>
<td>Epoxy</td>
<td>106°C (223°F)</td>
<td>120°C (248°F)</td>
<td>• Mid temperature curing, nonexpanding, ideal for sandwich structure under 3 mm (0.11”)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Excellent for edge close outs</td>
</tr>
<tr>
<td>TenCate Amilite SC6020A</td>
<td>Epoxy</td>
<td>106°C (223°F)</td>
<td>80°C (176°F)</td>
<td>• Low density, nonexpanding with flexible cure temperatures from 70-130°C (158-266°F)</td>
</tr>
<tr>
<td>TenCate Amspand ES72A-2</td>
<td>Epoxy</td>
<td>114°C (237°F)</td>
<td>125°C (257°F)</td>
<td>• Expanding epoxy resin film</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Varying density by tailoring cure pressure and/or volume</td>
</tr>
</tbody>
</table>

TenCate Compression Molded Billet Stock

TenCate Advanced Composites can fabricate your next compression molded part utilizing chopped fiber compression molded billet stock which is available* with a maximum size of 356 x 710 mm (14 x 28 inches) and thickness from 13 to 63.5 mm (0.5 to 2.5 inches).

Common applications:
› Hard paint attachment areas in a composite part;
› Prototype/small volume parts;
› Part iterations during the development phase of compression molded parts;
› Hard to fabricate complex composite parts which are better made from machining billet stock.

Associated benefits:
› Avoid tooling costs: Parts machined from billet have zero tooling costs!
› Short lead time: Parts can be machined quickly from billet stock avoiding long lead times.
› Billet stock is lower cost than continuous fiber thick laminates: Discontinuous fiber BMCs can be compression molded with lower labor and processing costs.
› Weight reduction: over aluminum of 40% |

*Country of shipment is North America
TenCate Cetex® thermoplastic materials are available as a broad variety of organo sheets or UD tapes and prepregs to facilitate your manufacturing process and part design. Additionally our continuous fiber reinforced thermoplastic (TenCate CFRT®) can be pre-consolidated and cut to customer part demands.

**KEY ADVANTAGES:**
- Rapid assembly
- Short cycle times
- Weldability
- Recyclability
- No freezer storage

**KEY PROCESSING TECHNOLOGIES FOR PROVEN AND RELIABLE VOLUME PART MANUFACTURING:**
- Compression molding/thermoforming
- Overmolding
- Advanced tape placement
- Variable in-molded composite sandwich
- Tubular winding, in situ, or autoclave processed

**TENCATE CETEX® UD TAPES**
Glass fiber and carbon fiber reinforced with thermoplastic polymers to a fiber volume content of 36–48% and a thickness of 0.13–0.27 mm. Suitable for tubular winding (pipes and tanks) and for automated part manufacture:

<table>
<thead>
<tr>
<th>UD Tape resin</th>
<th>Processing Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>PP</td>
<td>160–200°C (320–392°F)</td>
</tr>
<tr>
<td>PA6</td>
<td>230–300°C (446–572°F)</td>
</tr>
<tr>
<td>PPS</td>
<td>250–350°C (482–662°F)</td>
</tr>
<tr>
<td>PEI</td>
<td>300–370°C (572–698°F)</td>
</tr>
<tr>
<td>PEEK</td>
<td>350–400°C (662–752°F)</td>
</tr>
</tbody>
</table>

**TENCATE CETEX® ORGANO SHEETS**
Carbon and glass fiber reinforced thermoplastic laminates (RTL) known in the automotive industry as organo sheets, with fabric architecture and fiber orientation tailored to customer specific applications. Laminate thicknesses vary from 0.5 to 20 mm. They are engineered to meet the demands of high-end applications including structural, load bearing chassis, pillars, and structural interior parts. From these organo sheets, it’s possible to produce pre-cut blanks, tapered and shaped.

<table>
<thead>
<tr>
<th>Organo Sheet Combination</th>
<th>Processing Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon/PPS</td>
<td>300–350°C (572–662°F)</td>
</tr>
<tr>
<td>Glass/PPS</td>
<td>300–350°C (572–662°F)</td>
</tr>
<tr>
<td>Carbon/PEI</td>
<td>300–370°C (572–698°F)</td>
</tr>
<tr>
<td>Glass/PEI</td>
<td>300–370°C (572–698°F)</td>
</tr>
</tbody>
</table>

Different polymers, e.g., PEEK, available on request.

**Jaguar F-type AWD underbody panel with cooling slits and vents reinforced with TenCate Cetex® Glass/PP organo sheet**
HIGH-END AUTOMOTIVE THERMOPLASTIC APPLICATIONS

1. Engine protection plate manufactured from TenCate Cetex® Carbon/PEI organo sheet
   - **STIFF**
   - **LIGHTWEIGHT**

2. Front end module bumper beam manufactured from TenCate Cetex® Glass/PP organo sheet/UD tape
   - **HIGH TEMPERATURE RESISTANT**
   - **LIGHTWEIGHT**

3. Fully composite and composite hybrid wheel manufactured from TenCate Cetex® Carbon/PEI prepreg
   - **HIGH TEMPERATURE RESISTANT**
   - **LIGHTWEIGHT**

4. Side impact beam manufactured from TenCate Cetex® Glass/PP organo sheet/UD tape
   - **ENERGY ABSORBING**
   - **LIGHTWEIGHT**

5. A, B, C pillars manufactured from TenCate Cetex® Glass/PA6 UD tape
   - **STIFF**
   - **LIGHTWEIGHT**

6. Underbody panel manufactured from TenCate Cetex® Glass/PP organo sheet
   - **DRAPABLE**
   - **LIGHTWEIGHT**

7. Back seat/back rest plate manufactured from TenCate Cetex® Carbon/PA6 UD tape
   - **STIFF**
   - **LIGHTWEIGHT**
TenCate thermoset composites utilize both film impregnation and direct impregnation controlling the resin content, as well as the degree of impregnation to meet unique handling and processing requirements for each customer. We work with high-strength, intermediate- and high-modulus carbon fibers in addition to glass fibers in UD, woven, and multi-axial (NCF) reinforcements, these include visual quality standard materials. We offer a wide variety of proprietary resin systems ranging from toughened epoxies to high-temperature cyanate esters and BMIs.

We offer different types of thermoset prepregs in each of the following groups:

### MID TEMPERATURE CURING PREPREGS

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Resin Type</th>
<th>Tg (DMTA Onset)</th>
<th>Core Temp/Typical Cure</th>
<th>Description of Properties</th>
<th>Application Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>TenCate E726</td>
<td>Epoxy</td>
<td>105°C (221°F)</td>
<td>60 minutes at 120°C (248°F)</td>
<td>Complex shapes easily formed</td>
<td>Bodywork</td>
</tr>
<tr>
<td>TenCate E720</td>
<td>Epoxy</td>
<td>110°C (230°F)</td>
<td>60 minutes at 120°C (248°F)</td>
<td>Honeycomb bondable</td>
<td>Ambient structural</td>
</tr>
<tr>
<td>TenCate E745</td>
<td>Epoxy</td>
<td>118°C (244°F)</td>
<td>60 minutes at 135°C (275°F)</td>
<td>High toughness and impact properties</td>
<td>Side impact structures</td>
</tr>
<tr>
<td>TenCate E722</td>
<td>Epoxy</td>
<td>120°C (248°F)</td>
<td>60 minutes at 120°C (248°F)</td>
<td>Excellent drapability, Greater rigidity</td>
<td>Monolithic parts</td>
</tr>
<tr>
<td>TenCate E721- FR</td>
<td>FR Epoxy</td>
<td>120°C (248°F)</td>
<td>60 minutes at 120°C (248°F)</td>
<td>Fire retardant version of E720</td>
<td>Internal body work</td>
</tr>
<tr>
<td>TenCate E8020</td>
<td>Epoxy</td>
<td>121°C (250°F)</td>
<td>5.5 hours at 80°C (176°F)</td>
<td>Flexible low to medium cure schedules 70°C (158°F) to 130°C (266°F)</td>
<td>Development and prototype products requiring high-quality finish</td>
</tr>
<tr>
<td>TenCate E731</td>
<td>Epoxy</td>
<td>140°C (284°F)</td>
<td>60 minutes at 125°C (257°F)</td>
<td>High cosmetic clarity, Door panels, center console, dashboard</td>
<td></td>
</tr>
<tr>
<td>TenCate E750</td>
<td>Epoxy</td>
<td>148°C (298°F)</td>
<td>60 minutes at 135°C (275°F)</td>
<td>Variable temperature cure, starting at 60°C (140°F)</td>
<td>High impact areas, body work</td>
</tr>
<tr>
<td>TenCate E732 NEW</td>
<td>Epoxy</td>
<td>170°C (338°F)</td>
<td>4 minutes at 160°C (320°F)</td>
<td>Hot-in hot-out press processing, Short cure cycles between 120°C (248°F) to 160°C (320°F)</td>
<td>Press molded parts, automotive accessories</td>
</tr>
<tr>
<td>TenCate E760</td>
<td>Epoxy</td>
<td>194°C (387°F)</td>
<td>2 hours at 180°C (356°F)</td>
<td>High temperature resistance and high mechanical performance</td>
<td>High temperature e.g., rear suspension</td>
</tr>
</tbody>
</table>

### HIGH SERVICE TEMPERATURE

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Resin Type</th>
<th>Tg (DMTA Onset)</th>
<th>Core Temp/Typical Cure</th>
<th>Description of Properties</th>
<th>Application Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC420 Cyanate ester</td>
<td>177°C (350°F) or 221°C (430°F)</td>
<td>3 hours at 177°C (350°F), 280°C (536°F) for higher Tg</td>
<td>Excellent thermal stability, resistance to microcracking</td>
<td>Gear box</td>
<td></td>
</tr>
<tr>
<td>TenCate C740 Cyanate ester</td>
<td>325°C (617°F)</td>
<td>60 minutes at 135°C (275°F) followed by 300°C (572°F)</td>
<td>High temperature resistance and longer out life for larger parts</td>
<td>Pipework and ducting, exhaust area</td>
<td></td>
</tr>
<tr>
<td>TenCate C640 Cyanate ester</td>
<td>335°C (635°F)</td>
<td>10 hours at 80°C (176°F) followed by 300°C (572°F)</td>
<td>High temperature resistance and variable temperature cure</td>
<td>Brake ducts</td>
<td></td>
</tr>
</tbody>
</table>

Full mechanical data is available. Please call us at TenCate Advanced Composites (UK) to discuss your requirements.
HIGH-END AUTOMOTIVE THERMOSET APPLICATIONS

1. Front splitter and roof panel manufactured from TenCate E750
2. Engine compartment cover made with TenCate C640
3. Inserts - vents and headlights made with TenCate E731
4. Dashboard manufactured from TenCate E731
5. Door mirror manufactured from TenCate E731
6. Diffuser made with TenCate E750
7. Insert made with TenCate E750
8. Diffuser made with TenCate E760
9. Spoiler manufactured from TenCate E790
10. Center console made with TenCate E731
11. Chassis with TenCate E750
12. Door panel manufactured from TenCate E750
13. High temperature flooring with E760
14. Front and rear wings with E760 and E790
LOCATIONS AND CAPABILITIES

SOLUTIONS
- Thermoplastic composites
- Thermoplastic laminates
- Thermoset composites
- Carbon free manufacturing
- Parts manufacture
- Sales office

CERTIFICATIONS
- ISO 9001:2015
- AS9100:2015 Rev.D

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