High-Performance Prepregs

Preimpregnated Products for Fiber-Reinforced Composites

Composite Materials

Broad Base. Best Solutions.
SGL Group is one of the leading manufacturers of carbon-based products and has the broadest product and technology portfolio, a global sales network and state-of-the-art production sites in Europe, North America and Asia.

The Business Area Carbon Fibers & Composites (BA CFC) encompasses the complete value chain of carbon fiber products – from precursor via carbon fibers, fabrics and prepregs to finished CFRP composite parts.

We are the only European-based carbon fiber producer and have secured our own precursor supply. BA CFC has established a full range of downstream production technologies to provide its customers with a broad range of carbon products. Our materials portfolio is completed by glass fiber-based non-crimp fabrics and special technological developments like automated braiding in our joint venture SGL Kümpers.

Our subsidiary Hitco Carbon Composites has been supplying composite parts to the aerospace industry for many years now. To support the growth of the wind energy industry, our joint venture SGL Rotec is producing rotor blades for on- and offshore wind turbines. The automotive industry is supplied through our joint ventures Benteler SGL and Brembo SGL Carbon Ceramic Brakes.

We strive to be the leading carbon supplier to strategic growth industries with customized solutions from our broad product portfolio.
SIGRAFIL®, SIGRATEX® and PREDO®
Prepregs Tailored to Your Specific Application

SIGRAFIL, SIGRATEX and PREDO prepregs represent the whole spectrum of carbon, aramid and glass fiber materials available on the market. Thanks to our various processing methods, we can offer our customers a wide range of prepregs designed to meet their specific needs.

Advantages of prepregs over textile products
• High mechanical properties such as strength and rigidity
• Low weight
• Ease of processing
• Dimensioning as required
• High fiber content in the composite material
• Close laminate tolerances

SIGRAFIL® unidirectional prepreg
Unidirectional prepregs are made from high-grade carbon fibers which are impregnated with synthetic resins. The unidirectional (UD) fiber alignment results in high strength and rigidity, and also in pronounced anisotropy.

SIGRATEX® fabric prepreg
The fabric products for our prepregs are manufactured in our own weaving facility. They are based on carbon fibers, and also on glass or aramid fibers in hybrid composite materials.

PREDO® prepreg
PREDO exhibits its optimum properties when used in combination with carbon-based unidirectional and multiaxial products for the UDO® line. However, our prepregs also feature excellent performance when combined with other structures, non-woven or woven fabrics.
In-House Resin Formulation
for Individual Resin Systems

Prepregs supplied by SGL Group are the outcome of our future-oriented product development. We combine high-grade resin systems, formulated in-house, with ultramodern reinforcing materials. The resulting materials feature maximum performance combined with minimum weight and optimized to match your own specific application.

### Typical properties of composite materials at room temperature

<table>
<thead>
<tr>
<th>Prepreg</th>
<th>Fiber type</th>
<th>Weave</th>
<th>Weight (g/m²)</th>
<th>ILS (MPa)</th>
<th>E-modulus (GPa)</th>
<th>Tensile strength (MPa)</th>
<th>Tg °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epoxy carbon fabric prepreg</td>
<td>3K</td>
<td>Plain</td>
<td>200</td>
<td>70</td>
<td>70</td>
<td>1150</td>
<td>120</td>
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<tr>
<td>Epoxy carbon fabric prepreg</td>
<td>6K</td>
<td>Twill 2/2</td>
<td>400</td>
<td>63</td>
<td>65</td>
<td>850</td>
<td>120</td>
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<tr>
<td>Epoxy carbon fabric prepreg</td>
<td>12K</td>
<td>Twill 2/2</td>
<td>650</td>
<td>55</td>
<td>63</td>
<td>800</td>
<td>120</td>
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<tr>
<td>Epoxy carbon UD prepreg</td>
<td>24K</td>
<td>UD</td>
<td>200</td>
<td>75</td>
<td>75</td>
<td>126</td>
<td>120</td>
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<tr>
<td>Epoxy carbon UD prepreg</td>
<td>50K</td>
<td>UD</td>
<td>600</td>
<td>65</td>
<td>65</td>
<td>130</td>
<td>120</td>
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</tbody>
</table>

### Customized resin systems for widely varying requirements

<table>
<thead>
<tr>
<th>Resin system</th>
<th>Type</th>
<th>Tg °C</th>
<th>Curing temperature °C</th>
<th>Durability at RT (20 °C), days</th>
<th>Durability at -18 °C, months</th>
<th>Tack</th>
<th>Tough. modif.</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>FT 102</td>
<td>Epoxy</td>
<td>120 °C</td>
<td>80 - 160</td>
<td>14</td>
<td>6</td>
<td>L/M/H</td>
<td>Yes</td>
<td>Automotive, Aerospace, Industrial</td>
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<tr>
<td>FT 109</td>
<td>Epoxy</td>
<td>110 °C</td>
<td>80 - 160</td>
<td>70</td>
<td>12</td>
<td>M</td>
<td>Yes</td>
<td>Automotive, Wind energy, Industrial</td>
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<tr>
<td>FT 105</td>
<td>Epoxy</td>
<td>120 °C</td>
<td>70 - 120</td>
<td>21</td>
<td>4</td>
<td>L/M/H</td>
<td>Yes</td>
<td>Marine, Industrial</td>
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<tr>
<td>FT 2102</td>
<td>Phenolic</td>
<td>—</td>
<td>150 - 170</td>
<td>28</td>
<td>12</td>
<td>L/M/H</td>
<td>—</td>
<td>Anti-ballistic</td>
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<tr>
<td>FT 205</td>
<td>Phenolic</td>
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<td>120 - 160</td>
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<td>6</td>
<td>L/M/H</td>
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<td>Aerospace</td>
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<tr>
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<td>M</td>
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<td>Aerospace</td>
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<tr>
<td>E 201</td>
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<td>120 °C</td>
<td>90 - 140</td>
<td>90</td>
<td>12</td>
<td>M</td>
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<td>Automotive, Sports, Medical, Industrial</td>
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<td>12</td>
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<td>No</td>
<td>Automotive, Industrial</td>
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<tr>
<td>P 011</td>
<td>Phenolic</td>
<td>&gt; 200 °C</td>
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<td>180</td>
<td>12</td>
<td>M/H</td>
<td>No</td>
<td>High-temperature</td>
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</table>
Innovation and Quality

for Customized Solutions

Future-oriented prepreg development to match your needs
To turn an idea into reality, what’s needed is not only the right products but also partners able to think ahead. That’s why SGL Group can offer you more than just a comprehensive range of excellent high-performance materials: by systematically enhancing our research and development efforts in our Technology & Innovation Center, we have gained unique know-how and many years’ experience to meet the needs and requirements of our customers.

Customized product development
We achieve a consistent resin-fiber ratio with minimum resin consumption. This, combined with a perfectly straight fiber alignment, ensures excellent processing of our products. We use phenolic resins and solvent-free systems such as epoxys. Whether the prepregs are used for low-temperature and low-pressure systems or autoclave curing, we can offer you exactly what you need: products specially developed to meet your own technical requirements.

Quality is our standard
We have implemented the highest standards to meet exceptional demands. We are qualified suppliers to the aerospace industry and have been approved for boatbuilding supplies by accredited companies. The QM systems established at our production sites are certified in accordance with DIN EN ISO 9001:2000.
SIGRAFIL®, SIGRATEX® and PREDO® Prepregs for a Wide Range of Applications

Your benefits at a glance
• Prepregs tailored to meet your requirements
• Various textile structures: Non-crimped, woven and non-woven fabrics
• In-house resin formulation for individual resin systems

Typical applications
Aerospace industry
• Floor panels
• Interiors

Wind energy industry
• Belts
• Rotor blade connections

Mechanical engineering
• Oscillating beams
• Manipulators

Civil engineering
• Bridge reinforcement
• Concrete reinforcement
• Precise resin/fiber content over the entire material surface
• Enhanced quality of multilayered laminates

• Minimum weight combined with maximum rigidity
• Fatigue and corrosion resistance
• Optimal cost-effectiveness

Typical applications

• X-ray patient supports
• Transfer boards

Typical applications

• Safety helmets for military personnel
• Vehicle armor

Typical applications

• Rowing boats
• Racing cycles

Typical applications

• Engine hoods
• Fenders

Medical technology

Marine and sports

Automotive industry
Contact

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