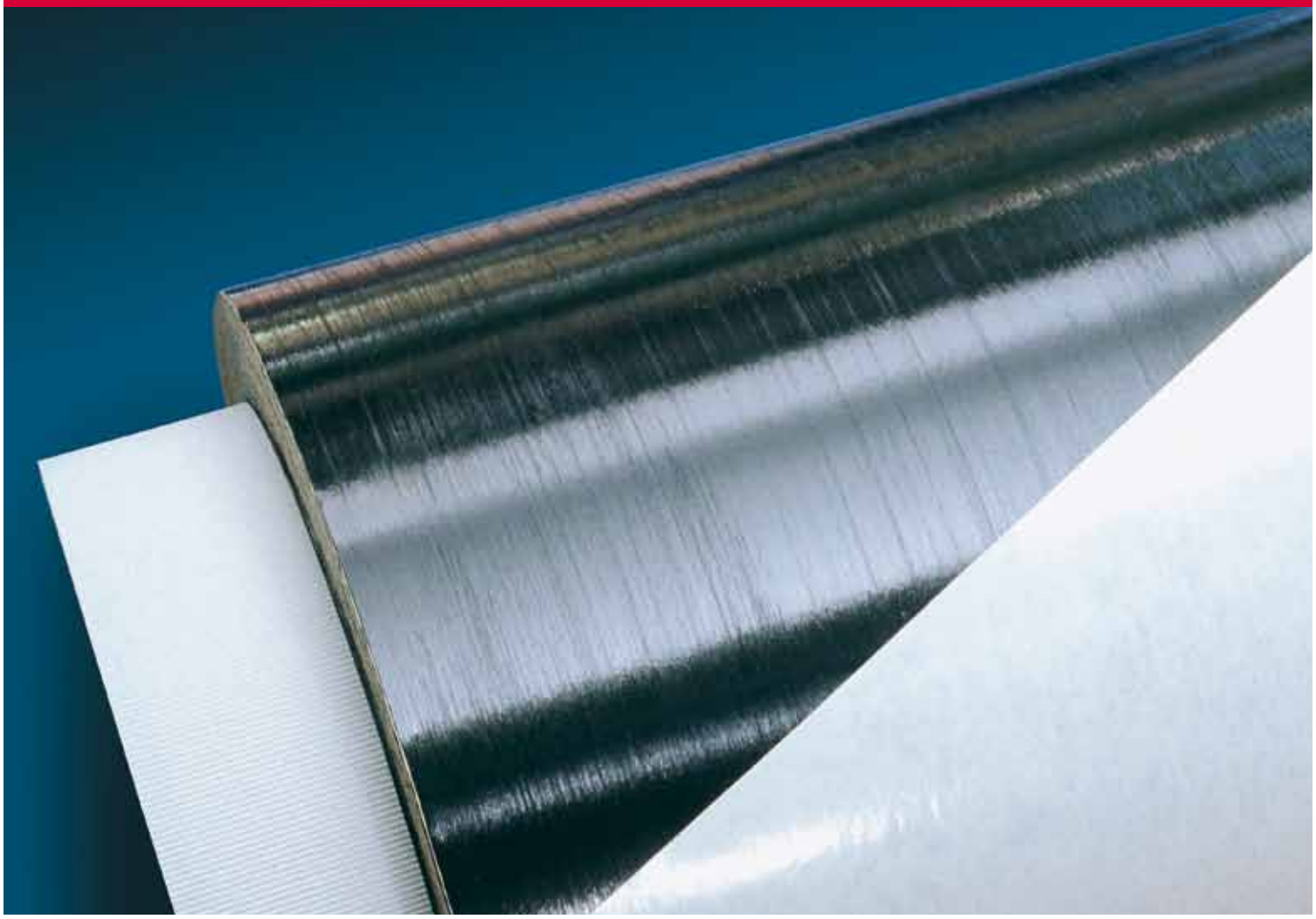
High-Performance Prepregs

Preimpregnated Products
for Fiber-Reinforced Composites

Composite Materials



Broad Base. Best Solutions.

SGL GROUP
THE CARBON COMPANY

Carbon is Future.

SGL Group – The Carbon Company.

Carbon has unique properties. It is indispensable in the production of steel, aluminum and solar energy systems. Carbon increases the performance of wind turbines and reduces the weight of airplanes, cars and sports equipment.

Carbon substitutes other materials and contributes to a reduction in CO_2 emissions.

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.

Carbon Fibers & Composites

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

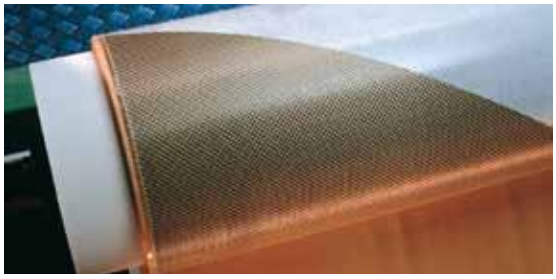
SIGRAFIL® unidirectional prepreg

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.

SIGRAFIL® prepreg

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.



SIGRATEX® prepreg

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.

PREDO® prepreg

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

Prepreg	Fiber type	Weave	Weight (g/m²)	ILS (MPa)	E-modulus (GPa)	Tensile strength (MPa)	Tg °C
Epoxy carbon fabric prepreg	3K	Plain	200	70	70	1150	120
Epoxy carbon fabric prepreg	6K	Twill 2/2	400	63	65	850	120
Epoxy carbon fabric prepreg	12K	Twill 2/2	650	55	63	800	120
Epoxy carbon UD prepreg	24K	UD	200	75	126	2300	120
Epoxy carbon UD prepreg	50K	UD	600	65	130	1900	120

Customized resin systems for widely varying requirements

Resin system	Type	Tg °C	Curing temperature °C	Durability at RT (20 °C), days	Durability at -18 °C, months	Tack	Tough. modif.	Applications
FT 102	Epoxy	120 °C	80 - 160	14	6	L/M/H	Yes	Automotive, Aerospace, Industrial
FT 109	Epoxy	110 °C	80 - 160	70	12	M	Yes	Automotive, Wind energy, Industrial
FT 105	Epoxy	120 °C	70 - 120	21	4	L/M/H	Yes	Marine, Industrial
FT 2102	Phenolic	—	150 - 170	28	12	L/M/H	—	Anti-ballistic
FT 205	Phenolic	—	120 - 160	7	6	L/M/H	—	Aerospace
FT 1132	Epoxy	100 °C	140 - 160	14	12	M	Yes	Aerospace
E 201	Epoxy	120 °C	90 - 140	90	12	M	Yes	Automotive, Sports, Medical, Industrial
E 022	Epoxy	140 °C	100 - 150	90	12	L/M	No	Sports, Medical, Industrial
E 030	Epoxy	> 180 °C	120 - 180	90	12	L/M	No	Automotive, Industrial
P 011	Phenolic	> 200 °C	100 - 180	180	12	M/H	No	High-temperature

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.

TÜV SÜD ISO 9001

Germanischer Lloyd

MOODY INTERNATIONAL CERTIFICATION QZERT

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

Aerospace industry

Typical applications

- Floor panels
- Interiors

Wind energy industry

Typical applications

- Belts
- Rotor blade connections

Mechanical engineering

Typical applications

- Oscillating beams
- Manipulators

Civil engineering

Typical applications

- 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

Marine and sports

Typical applications
- Rowing boats
- Racing cycles

Automotive industry

Typical applications

Body shell components such as:
- Engine hoods
- Fenders

Medical technology

Typical applications
- X-ray patient supports
- Transfer boards

Anti-ballistic technology

Typical applications
- Safety helmets for military personnel
- Vehicle armor

Contact

SGL TECHNOLOGIES GmbH
Werner-von-Siemens-Straße 18
86405 Meitingen/Germany
Phone +49 8271 83-2160
Fax +49 8271 83-1427
compositematerials@sglcarbon.de

SGL epo GmbH
Siemensring 24
47877 Willich/Germany
Phone +49 2154 9238-0
Fax +49 2154 9238-44
sglepo@sglcarbon.de

10 2010/1 2NÄ Printed in Germany

Carbon Fibers & Composite Materials

SGL TECHNOLOGIES GmbH

Rheingaustraße 190-196
65203 Wiesbaden/Germany

www.sglgroup.com

SGL GROUP
THE CARBON COMPANY