STRUCTIL

COMPOSITE MATERIALS

STRUCTIL, a subsidiary of SAFRAN Herakles (80%) and MITSUBISHI RAYON, Co, LTD., one of the world leading producers of carbon fibres, is dedicated to the designing, manufacturing and marketing of intermediate products aimed at the high-performance composites industry.

STRUCTIL, supplies Aerospace, Defence, Sports & Leisure sectors as well as the general industry with a range of intermediate products, mainly based on the use of carbon fibres and thermoset resins, and dedicated to the manufacture of highly structural parts.

STRUCTIL range includes four complementary product categories:

- **STRUCTURAL ADHESIVES, PASTES AND FILMS**
- **PULTRUDED CARBON PROFILES**
- **CARBON PREPREGS, UD TAPES AND FABRICS**
- **SPECIALTY PRODUCTS**

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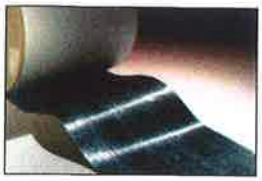
PREPREGS, CARBON UD TAPES AND FABRICS

STRUCTIL offers a complete range of prepregs supplied as:
- unidirectional tapes with 70 to 600 g/m² surfacic weight of standard modulus, intermediate and high modulus carbon fibres or pitch fibres;
- fabrics and multiaxials of carbon fibres, glass, quartz, basalt, aramid, flax, natural fibre with fibre surfacic weight from 100 to 800 g/m².

These various reinforcements are impregnated with thermoset resin systems formulated by STRUCTIL, can be processed in and out of autoclave with cure cycles between 80 and 200°C:



- transparent resins for cosmetic parts;
- high toughness resins with carbon nanotubes;
- auto-adhesive and fire retardant resins;
- resins with specific dielectric characteristics;
- toolings resin system.

STRUCTIL prepregs are used for many various applications:
- **civil and defence aerospace:** primary structure parts, nacelles and engine parts, equipments and interiors...
- **industry:** cosmetic parts, structural parts, sandwich panels, medical parts, protection and armor...
- **sporting goods:** marine (hulls, masts and appendices), cycles, ski...

SPECIALTY PRODUCTS

> MATERIALS FOR ELECTROMAGNETIC APPLICATIONS

Intermediate products with specific dielectric characteristics: resins, structural adhesives, and **SERFAX®** prepregs.
Applications: radar transparency (radomes and electromagnetic windows), radar absorbers (stealth, false echos treatment and mutual interferences).

> MATERIALS FOR THERMAL SHIELDING

ABLADUR® products qualified for the protection of missile launchers against missiles rear flame.
THERMATIL® non organic resins (M0/F0 classification), cure cycle below 100°C, used in the realisation of fireproof shieldings for industry, transport and building.

> MATERIALS FOR LIGHT ARMOURING

Composite materials shielding meeting European and American standards such as HOSDB and NAJ.

> RELEASE AGENTS FREEKOTE®

> LIGHTNING STRIKE PRODUCTS ASTROSEAL®

STRUCTIL quality and environment management systems are certified ISO 9001, EN 9100 and ISO 14001.

ISO 9001
ISO 14001
EN 9100
BUREAU VERITAS
Certification

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STRUCTIL ACTIVITES

STRUCTURAL ADHESIVES, PASTES AND FILMS

STRUCTIL manufacture a large range of adhesives for aeronautics, space and industrial technical applications.

> PASTE ADHESIVES

A complete range of one or two part epoxy and BMI adhesives with a service temperature until 180°C (epoxy) and 230°C (Bismaleimide), with different viscosities, used for bonding metal and composite materials, potting, fairing and repair by wet lay-up. Available packaging in kits and/or cartridges.

> FILM ADHESIVES

A range of structural film adhesives, epoxy and BMI, with an areal weight from 65 to 500 gsm and a range of service temperature from 80°C to 220°C, including reticulated adhesive films aimed for the high temperature environment of nacelles.

> CORE SPLICE ADHESIVES

Foaming core splice adhesives, epoxy and BMI, used in the manufacture of sandwich structures with metal or composite honeycomb.

> SURFACING FILMS

The surfacing films can be used for both surface and lightning strike applications in the composite parts:
- decrease of the manufacturing cost by improving the quality of the surface before painting;
- integration of the lightning strike resistance properties.

RTM RESINS:

- RTM epoxy resin, cure temperature between 150°C and 180°C, with a long injection window;
- Structral epoxy tackifier to be sprayed, compatible with the existing epoxy 180°C RTM resins.

The tackifier is used as a binder to position and assemble the preforms before injecting the RTM resin.

PULTRUDED CARBON PROFILES

Pultrusion is a continuous process for the manufacture of composite profiles.
STRUCTIL was a pioneer in the pultrusion of unidirectional and oriented ("pullwinding" process) carbon fibres profiles with high performances.
STRUCTIL offers a large variety of sections:
- rods with diameter from 1 to 40 mm;
- flat sections from 5 to 100 mm wide and 0,5 to 10 mm thickness;
- tubes with diameter from 4 to 100 mm and thickness from 1 to 10 mm (telescopic serial is available).

Special profile sections can be developed.

STRUCTIL profiles are made of carbon fibres (standard, intermediate and high modulus), glass, quartz, basalt or other fibres as specified.
Unidirectional fibres (0°) are associated to oriented fibres (0 to 90°) to improve transverse crushing resistances.
The profile matrix is issued from STRUCTIL formulations based on epoxy and polyurethane thermoset resins allowing applications in the most severe environments until 100°C basically and 200°C in certain conditions.
STRUCTIL profiles are used in many fields:
- aerospace: struts, stiffeners, spars, various profiles for interiors;
- industry and sports: robotic, medical, building, telescopic monopods and tripods.

STRUCTIL pultruded profiles are available on webshop www.structil.biz

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Revision 01 - March 2015

STRUCTIL NEW ADHESIVE SELECTOR GUIDE

Paste Adhesives

Reference	Package	Mix Ratio A / B	Viscosity Poise	Pot Life 100g	Consistency	Cure Temperature and Time	Bell Peel N/25 mm	Tensile Lap Shear MPa		Service Temperature Range (°C)	Applications	Main Qualifications
			23°C	23°C			23°C	23°C	Elevated Temp.			
ST1070 STRUCTIL	Kit = 908g	100/31	35	100 minutes	Low Viscosity	1H 65°C 5 days RT	-	35 MPa	22 MPa 130°C 15 MPa 150°C 8 MPa 180°C	-55°C to 180°C	Structural Bonding and Wet Lay up	Sampling / Screening
ST1020 STRUCTIL	Kit = 908g	100/19	1600	> 8 Hours	Thixotropic	1H 90°C	-	30 MPa	20 MPa 150°C 15 MPa 200°C 8 MPa 230°C	-55°C to 230°C	Liquid Shim Potting / Filling Bonding	Sampling / Screening

Reference	Package	Mix Ratio A / B	Density	Pot Life 60g	Consistency	Cure Temperature and Time	Bell Peel N/25 mm	Tensile Lap Shear MPa		Service Temperature Range (°C)	Applications	Main Qualifications
			23°C	23°C			23°C	23°C	Elevated Temp.			
ST1007 STRUCTIL	Cartridges Semkit 6OZ 60g	Cartridge Semkit Barrier	0,65	60 minutes	Moderate Viscosity	1H 65°C 5 days RT	-	21 MPa	13 MPa 120°C 7 MPa 180°C	-55°C to 180°C	Potting Fastening rivets	THALES

eT-BOND

Reference	Package	Mix Ratio A / B	Density	Pot Life 100g	Consistency	Cure Temperature and Time	Tensile Lap Shear MPa	Conductivity 23°C		Service Temperature Range (°C)	Applications	Main Qualifications
			23°C	23°C			23°C	Thermal	Electrical			
ST1008C STRUCTIL	Kit = 454g Kit = 908g	100/28	1,3	90 minutes	High Viscosity	1H 65°C 5 days RT	10 MPa	4,4 W/m.K	3 S/cm	-55°C to 150°C	Bonding	Sampling / Screening
ST1009C STRUCTIL	Kit = 454g Kit = 908g	100/31	1,65	90 minutes	Moderate Viscosity	1H 65°C 5 days RT	19 MPa	0,8 W/m.K	300 S/cm	-55°C to 180°C	Bonding	Sampling / Screening

Film Adhesives

Reference	Size Roll Width	Areal weight	Outtime Days 23°C	Cure Temperature and Time	Bell Peel N/25 mm	Tensile Lap Shear MPa (292 g/m²)			Tg onset Dry	Service Temperature Range (°C)	Applications	Main Qualifications
					23°C	23°C	Elevated Temperatures					
ST1480 STRUCTIL	50 m² 914 mm	150 g/m² to 450 g/m²	30 days	90min 180°C	125 N/25mm (146 g/m²)	29 MPa	120°C 26 MPa	150°C 23 MPa	193°C	-55°C to 150°C	Structural Bonding	Sampling / Screening

Au capital de 3 109 850 Euros 331 629 885 R.C.S. Evry
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