

**WE DEVELOP
YOUR IDEAS**

-CIT-
Composite Materials Italy

 Toray Group



01 CIT

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CIT

Composite Materials (Italy) srl - CIT a Toray Group Company - manufactures woven carbon, special fabrics, multiaxial, prepregs and UD tapes.

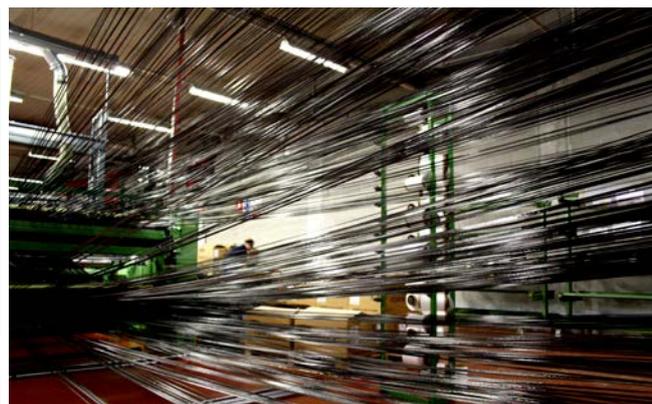
We also formulate and apply our own resins, epoxy and phenolic, as well as other formulations depending on the designated use and areas of application: industrial, aerospace, automotive, sport and leisure, medical, building and marine.

CIT works in partnership with customers on projects aimed at obtaining one of a kind pieces with the highest technical-performance level, in particular for competition vehicles and industrial applications.

We serve industries requiring composites because of their characteristics of lightness, versatility and precision.

CIT approach to composites is both specific and global, translating the customer specific requirements into a product offer that satisfies the specific need, in the most efficient and effective way.

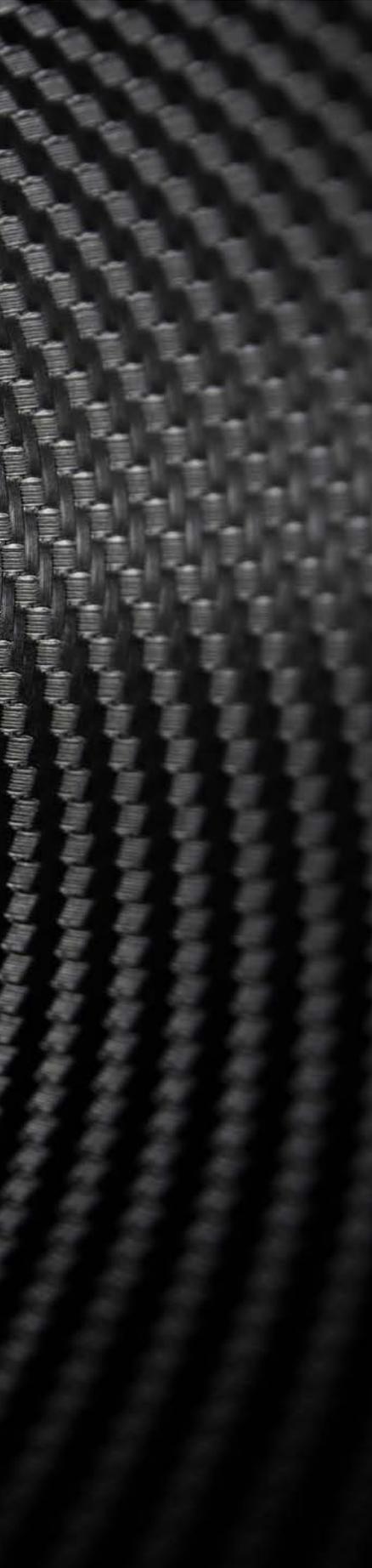
This is made possible thanks to our ability to manage the entire process. We have testing laboratories, weaving and impregnating equipment, and a staff of specialized engineers who understand the specific applications and customer requests and design the most suitable solution, all in-house.



HIGH PERFORMANCE
HIGH TECHNICAL SUPPORT
FULL SCALE OF DATA
FAST MATERIAL DELIVERY
CUSTOM SOLUTIONS

02 PRODUCTS

TOTALLY
FOCUSED
ON YOUR
PROJECTS



DRY FABRICS

CIT internally produces a wide range of fabrics in carbon fiber, aramid fiber, as well as multiaxial fabrics, hybrid fabrics, unidirectional hybrid fabrics and tapes for over 25 years.

PREPREGS & UD

CIT is a manufacturer of prepregs and UD tapes. Prepregs are fiber reinforced materials which are impregnated with various resin systems and supplied in fabric or unidirectional form. We formulate our own resins, which can be epoxy, phenolic or cyanate ester matrix. The whole range of our fabrics, carbon, aramid, special and hybrid, can be impregnated. Applications include automotive, aerospace, transportation, sports & leisure, medical and marine industries.

03 APPLICATIONS

YOUR IDEAS FACILITY



AEROSPACE

Emerging markets and the replacement of aging aircraft fleets are driving the growing demand for lighter, stronger and more advanced materials and chemical technologies for aerospace applications. New technologies are making it possible to surpass previous performance limitations, expand design options and lower part costs. Toray is a leading company for commercial aero applications all over the world.



INDUSTRY

All industries depend heavily on optimizing manufacturing processes, using advanced composite material to get benefit from them. CIT experience can support every player in the market looking to improve production output speed while decreasing the energy consumption. The supply chain in support of industrial production, from raw material to manufacturing, is currently determining how to further engage and leverage advanced materials and chemical technologies to accelerate improved results and sustainability.





AUTOMOTIVE

High volume manufacturing methods and weight reduction are two important considerations for the automotive industry. One production run may require manufacture of hundreds of thousands of parts per year, and the rapid stamping processes associated with fast thermosetting based composite materials lend themselves to these high volume needs.

Continuous fiber reinforced materials offer equivalent strength and stiffness with lower weight when compared to injection molded parts and metallic parts. Where Energy saving is required, CIT is here.



RACE

Along with superior technical service and applications engineering support, CIT offers a full spectrum of composite materials for race applications.

Where customers are actively seeking a solution to reduce weight and increase vehicles performances, we are ready to co-design and develop the most advanced solution, with our typical fast friendly service and professional support. We are race.



SPORT & LEISURE

Composite materials are used in a variety of other applications, which benefit from the light weight and high stiffness of composites.

In the recreational arena, composites are used in golf club shafts, tennis rackets, fishing rods, boat paddles, bats, hockey sticks and a variety of other applications.



04 DRY FABRICS

ARAMID FABRICS									
Article		threads x cm		linear density		weight			Weave
		warp	weft	warp	weft	warp	weft	total	
		(UNI EN 1049-2)		(dTex)		(gr/mq) ± 4%			
						(UNI 5114-82)			
STYLE	120	13	13	215	215	30	30	60	plain
STYLE	220	9,5	9,5	420	420	40	40	80	plain
STYLE	181	20	20	420	420	84	84	168	8 H satin
STYLE	281	6,7	6,7	1270	1270	86,5	86,5	173	plain
STYLE	285	6,7	6,7	1270	1270	86,5	86,5	173	crowsfoot satin
STYLE	282	6,7	6,7	1270	1270	86,5	86,5	173	twill 2/2
STYLE	335	6,7	6,7	1580	1580	111	111	223	crowsfoot satin
STYLE	900	6,7	6,7	2400	2400	163	163	326	5 H satin
STYLE	1350	9,3	9,3	2400	2400	225	225	450	basket 4/4
ZZ	300	9,1	9,1	Zylon HM	Zylon HM	150	150	300	twill 2/2

CARBON FABRICS									
Article		threads x cm		fiber		weight			Weave
		warp	weft	warp	weft	warp	weft	total	
		(UNI EN 1049-2)		(tex)		(gr/mq) ± 4%			
						(UNI 5114-82)			
CC	90	7,0	7,0	HS 1K	HS 1K	47	47	94	plain
CC	120	9,0	9,0	HS 1K	HS 1K	61	61	122	plain
CC	160	4,0	4,0	HS 3K	HS 3K	80	80	160	plain
CC	201	4,9	4,9	HS 3K	HS 3K	97	97	194	plain
CC	205	4,9	4,9	HS 3K	HS 3K	97	97	194	twill 2/2
CC	202	5,1	5,1	HS 3K	HS 3K	102	102	204	plain
CC	206	5,1	5,1	HS 3K	HS 3K	102	102	204	twill 2/2
CC	245	6,0	6,0	HS 3K	HS 3K	120	120	240	twill 2/2
CC	281	3,5	3,5	HS 6K	HS 6K	140	140	280	5 H satin
CC	282	7,0	7,0	HS 3K	HS 3K	140	140	280	twill 4/4
CC	283	1,7	1,8	HS 12K	HS 12K	136	144	280	twill 2/2
CC	284	7,0	7,0	HS 3K	HS 3K	140	140	280	twill 2/2
CC	285	1,7	1,8	HS 12K	HS 12K	136	144	280	plain
CC	289	7,0	7,0	HS 3K	HS 3K	140	140	280	5 H satin
CC	301	3,7	3,7	HS 6K	HS 6K	150	150	300	twill 2/2
CC	302	3,7	3,7	HS 6K	HS 6K	150	150	300	plain
CC	370	4,6	4,6	HS 6K	HS 6K	184	184	368	5 H satin
CC	384	2,4	2,4	HS 12K	HS 12K	190	190	380	twill 2/2
CC	402	5,0	5,0	HS 6K	HS 6K	200	200	400	twill 4/4
CC	420	2,5	2,6	HS 12K	HS 12K	204	212	416	twill 2/2
CC	450	5,6	5,6	HS 6K	HS 6K	225	225	450	twill 4/4
CC	600	3,8	3,8	HS 12K	HS 12K	300	300	600	twill 2/2
CC	631	3,9	3,9	HS 12K	HS 12K	315	315	630	twill 2/2
CC	700	4,2	4,2	HS 12K	HS 12K	336	336	672	twill 2/2
CC	950	5,7	5,7	HS 12K	HS 12K	460	460	920	8 H satin
CC	204	4,5	4,5	T800 6K	T800 6K	99,5	99,5	199	twill 2/2
CC	200	4,5	4,5	M46J 6K	M46J 6K	100	100	200	twill 2/2
CC	200	4,0	4,0	T1000 6K	T1000 6K	100	100	200	twill 2/2
CC	280	6,0	6,5	M46J 6K	M46J 6K	134	146	280	5 H satin
CC	280	6,3	6,2	T1000 12K	T1000 12K	142	138	280	5 H satin
CC	280	2,9	2,9	T1100 12K	T1100 12K	140	140	280	5 H satin
CF	206	5,1	5,1	HS 3K	HS 3K	102	102	204	twill 2/2
CF	240	1,5	1,5	HS 12K	HS 12K	120	120	240	plain
CF	283	1,7	1,8	HS 12K	HS 12K	136	144	280	twill 2/2

HYBRID FABRICS

Article	threads x cm		fiber		weight			Weave	
	warp	weft	warp	weft	warp	weft	total		
	(UNI EN 1049-2)		(tex)		(gr/mq) ± 4%				
							(UNI 5114-82)		
CK	160	5,0	4,1	3K (C) - 158 (A)	3K (C) - 158 (A)	66 (C) - 26 (A)	26 (C) - 42 (A)	160	plain
CK	204	6,3	6,3	3K (C) - 127 (A)	3K (C) - 127 (A)	64 (C) - 41 (A)	64 (C) - 41 (A)	208	twill 3/1
CK	220	7,0	6,3	3K (C)	127 (A)	142	81	223	twill 3/1
CKK	180	5,0	5,0	3K (C) - 158 (A)	3K (C) - 158 (A)	34 (C) - 54 (A)	34 (C) - 54 (A)	175	plain
CKK	181	5,0	5,0	3K (C) - 158 (A)	3K (C) - 158 (A)	34 (C) - 54 (A)	34 (C) - 54 (A)	175	twill 2/2
CKK	240	6,7	6,7	3K (C) - 158 (A)	3K (C) - 158 (A)	45 (C) - 73 (A)	45 (C) - 73 (A)	240	twill 2/2
EA	390 S	4,5	4,7	600 (E) - 240 (A)	600 (E) - 240 (A)	135 (E) - 54 (A)	141 (E) - 56 (A)	386	twill 3/1

UNIDIRECTIONAL HYBRID FABRICS

Article	threads x cm		fiber		weight			Weave	
	warp	weft	warp	weft	warp	weft	total		
	(UNI EN 1049-2)		(tex)		(gr/mq) ± 4%				
							(UNI 5114-82)		
CG	170	7,0	4,3	3K (C)	68 (E)	142	30	172	plain
CG	205	8,5	4,3	3K (C)	68 (E)	174	30	204	plain
CG	399	4,2	2,8	12K (C)	200 (E)	344	56	400	plain
CG	550	5,6	2,5	12K (C)	200 (E)	460	60	520	plain
CG	600	6,5	2,5	12K (C)	200 (E)	525	51	576	plain
GK	195	7,3	6,8	240 (A)	34 (E)	175	30	205	plain

TAPES

Article	threads x cm		fiber		total weight	weave		
	warp	weft	warp	weft				
	(UNI EN 1049-2)		(tex)				(gr/mq) ± 4%	
					(UNI 5114-82)	(UNI 8099)		
NCU	215	5,0	5,0	6K (C)	34 (E)	225	REPS 2/2	REPS 2/2
NCU	300	3,6	6,2	12K (C)	5,5 (PES)	294	REPS 2/2	REPS 2/2
NCU	380	4,6	6,1	12K (C)	5,5 (PES)	387	REPS 2/2	REPS 2/2
NCU	501	12,5	10,0	12K (C) - 34 (E)	34 (E)	538	REPS 2/2	REPS 2/2

C: Carbon - A: Aramide - E: E glass - PES: Polyester
 Standard widths: 50, 75, 100, 120 mm are available in stock.
 Special widths in the range 30 , 120 mm upon request.

MULTIAXIAL FABRICS

Article	weights in each axis (gr/mq) ± 5%					total weight	thickness	Material
	0°	+45°	90°	-45°	GSM			
	(UNI 5114-82)							
						(UNI EN ISO 5084)		
	± 45° Biaxial							
CBX	300	150		150	300	0,3	CARBON	
CBX	400	200		200	400	0,45	CARBON	
CBX	440	220		220	440	0,45	CARBON	
CBX	600	300		300	600	0,6	CARBON	
EBX	300	150		150	300	0,3	GLASS	
EBX	400	200		200	400	0,43	GLASS	
EBX	600	300		300	600	0,6	GLASS	

06 RESIN SYSTEMS & UD

RESIN SELECTOR GUIDE

RESIN		CURE CYCLE				STABILITY		SUPPORT			ADDITIONAL FEATURES
Name	Type	Maximum Service Temperature	Cure Temperature Range	Typical cure cycle	Post-cure (when needed)	@23°C Days	@-18°C Months	Fabric & Multi-axial	UD (HS, IM, HM, UHM)	Black version available	Notes
ET445	A/S	135°C	80°C-150°C	30' @ 125°C		40	12	✓	✓	✓	Trasparent, very shining (A-Preg* version available)
#2573	S	115°C	130°C	2h @ 130°C		30		✓	✓		High toughness Nanoalloy™ resin to absorb impact energy
#2574	S	90°C/150°C	130°C	2h @ 130°C		30		✓	✓		High compressive Nanoalloy™ resin
ER434	S	125°C	85°C-135°C	90'@125°C		30		✓	✓	✓	High toughness and impact resistance
ER441	S	160°C	120°C-150°C	2h @ 135°C		21	12	✓	✓	✓	High Tg toughened resin with good compressive properties
ER450	A/S	180°C	80°C-180°C	2h @ 135°C		45		✓	✓	✓	Toughened and with versatile cure temperatures
ER563	HT	238°C	135°C-180°C	2h @ 180°C	2h @ 200°C	21		✓	✓	✓	Very High Tg toughened resin
CE260	HT/F	340°C	80°C-90°C	16h @ 80°C	2h @ 250°C	3	6	✓	✓		Low temperature cure cycle cyanate ester resin
CE662	HT/F	360°C	125°C-180°C	2h @ 135°C	2h @ 180°C	21	12	✓	✓		Cyanate-ester resin (UL94V0+ATS1000+FAR 25.853 compliant)
EF452	S/F	140°C	125°C-150°C	90' @ 125°C		21		✓	✓	✓	Fire resistant Epoxy (ATS1000+FAR 25.853 compliant)
EF455	S/F	150°C	120°C-150°C	2h @ 135°C		21	12	✓		✓	Fire resistant Epoxy (UL94V0 + FAR 25.853 compliant)
FF562	F	150°C	125°C-150°C	75' @ 135°C		30		✓		✓	Fire resistant Phenolic (ATS1000+FAR 25.853 compliant)
ES161	T	200°C	45°C-55°C	14h @ 45°C	5h @ 200°C	5		✓		✓	Tooling prepreg (High thermal stability and excellent surface finishing)
ES253	T	160°C	45°C-65°C	12h @ 50°C	6h @ 180°C	5	6	✓			

Application: A - Aesthetical | S - Structural | F - Fire Resistant | T - Tooling system | HT - High Temperature
 *A-Preg is CIT class A solution for automotive body panels and interiors.

Compatible adhesive film range is also available.

NANOALLOY™ technology is an innovative microstructure control technology developed by Toray that can bring about dramatic improvement in characteristics compared to traditional epoxy by minutely dispersing multiple polymers on a nanometric scale.

We developed matrix resin #2573 and #2574 applying NANOALLOY™ technology which more than two kinds of resins are phase separated. It achieved modulus of elasticity and fracture toughness simultaneously although those characteristics were difficult to coexist so far. Carbon fiber prepregs using these matrixes are already used for F1 side intrusion panels and chassis construction and in demanding MARINE applications. The Italian Toray company CIT, is producing these materials as fabric prepreg and unidirectional tapes."

QUICK ANSWERS TO YOUR NEEDS



Process and Mechanical:

- Lab scale autoclave, press and oven cure capabilities
- Mechanical - load test frame equipped with tensile, compression, shear and drum peel fixtures
- Experts test coupon preparation and computer data acquisition
- Laminate cross section analysis by microscope

Physical/Chemical:

- DSC, FTIR, TGA, DMA RHEOMETER
- Resin content, gel-time, volatile content
- Tackiness, Impregnation level
- Flammability (vertical burn)

Environmental:

- Temperature and humidity conditioning

