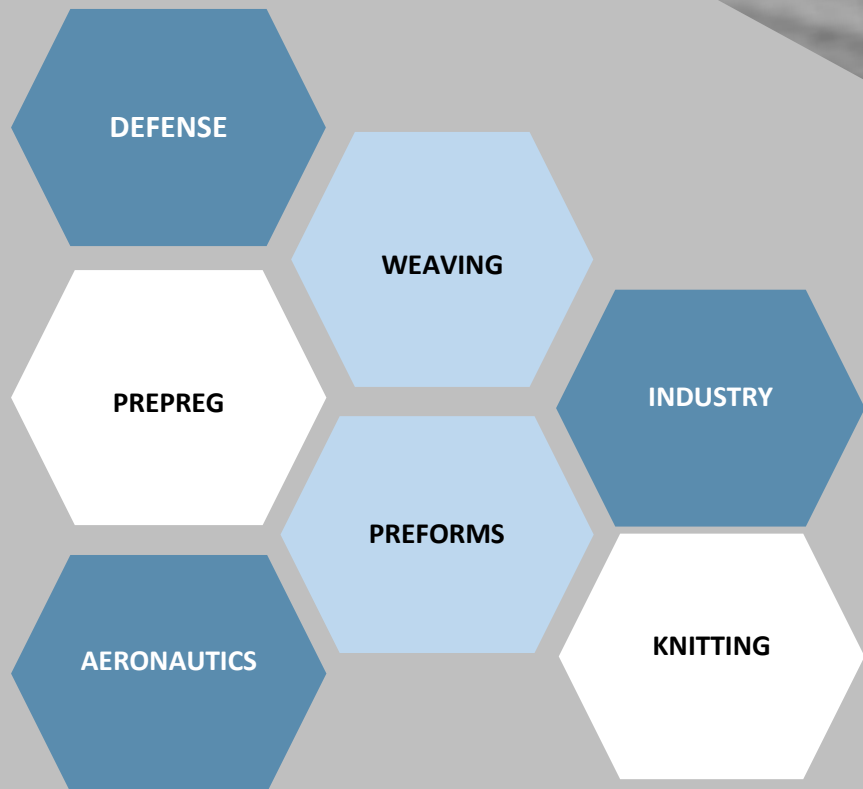




PRODUCT SELECTOR GUIDE



INTRODUCTION TO CTMI

AN HISTORICAL COMPANY



The creation dates back to 1886. For more than 90 years, the company was indeed a silk manufactory that supplied the silk market of Lyon.

At the turn of the 1980s, society faced with the decline of silk has turned gradually to technical textiles. This is how CTMI has progressively woven fiberglass and successively aramid, carbon, quartz.

Over the years, we have conquered the aerospace, defense and space markets as well as many applications in the industry.

Today, CTMI carries all this legacy and textile tradition firmly rooted in our territory, and still wants to continue to bring innovation and disruptive technologies to the composites market.

Let's build together the Textiles and Composite Materials of tomorrow that will help push the boundaries of today's technology

QUALITY, SAFETY AND ENVIRONMENT: the three fundamental pillars of a responsible company

CTMI always have been driven by Innovation and have proven history for confidentiality. The company has long and strong relationship with European producer for Quartz, Carbon, Glass Fibers: we are preferred partner for their R&D.

CTMI focuses through its charts to protect employees & environment.

CTMI is ISO 9001:2015 & EN9100:2018.



FIELDS OF APPLICATIONS



AEROSPACE MARKET

CTMI holds qualified preregs for aerospace:

CTMI supply Major OEM & Tier 1/2. We are flying on A350 & A330neo.

DEFENSE MARKET

This is our historical market and we became over the years a qualified supplier for various customers: naval ships, military jet plane, missiles, etc.

INDUSTRIAL MARKET

CTMI delivers its products to various industrial markets from technical fabrics to preregs.

We deliver our products for example into: Food Industry (cooking mould); Water castle; TGV High speed train (pentograph); Composite tooling; Painting industry.



FABRICS

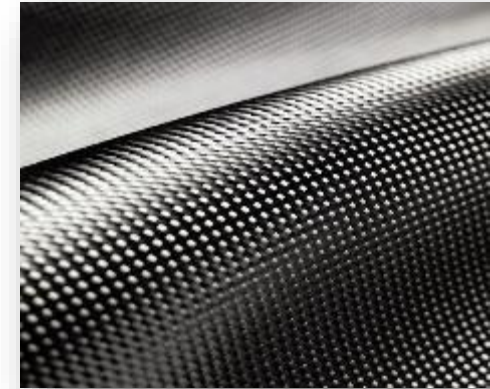
HIGH STRENGTH CARBON FABRICS

STYLE	WEIGHT	FIBER COUNT		REINFORCEMENT YARN		WEAVE
		<i>WARP</i> (yarns/cm)	<i>WEFT</i> (picks/cm)	<i>WARP</i>	<i>WEFT</i>	
5468	200 g/m ²	5	5	3 k	3 k	Plain
5626	200 g/m ²	5	5	3 k	3 k	Twill 2 x 2
5488	250 g/m ²	7,5	7,5	3 k	3 k	Twill 2 x 2
5469	280 g/m ²	7	7	3 k	3 k	4 H satin
5783	290 g/m ²	7,25	7,25	3 k	3 k	5 H satin
5802	300 g/m ²	3,75	3,75	6 k	6 k	Twill 2 x 2
5926	600 g/m ²	7,5	7,5	6 k	6 k	Twill 2 x 2
5807	600 g/m ²	3,75	3,75	12 k	12 k	Twill 2 x 2



INTERMEDIATE MODULUS CARBON FABRICS AND UNIDIRECTIONAL

Style	Weight	Fibre Count		Reinforcement Yarn		Weave
		Warp (yarns/cm)	Weft (picks/cm)	Warp	Weft	
Intermediate Modulus Fabrics						
	200 g/m²	4.5	4.5	IM 6K	IM 6K	Twill 2x2
	280 g/m²	6.5	6.5	IM 6K	IM 6K	Satin 5
Unidirectional Fabrics - High Strength Fibers						
5531	169 g/m²	8	4	3K	EC5 22	UD PW
	175 g/m²	8.4	6.9	3K	EC5 11	UD PW
	185 g/m²	8.4	4	3K	1K HS	UD PW
	300 g/m²	3.7	3	12K	EC5 11	UD PW
	530 g/m²	6.2	4.4	12K	EC9 68	UD PW



QUARTZ FABRICS

STYLE	WEIGHT	FIBER COUNT		REINFORCEMENT YARN		WEAVE
		WARP (yarns/cm)	WEFT (picks/cm)	WARP	WEFT	
6019	60 g/m ²	18	18	17 tex	17 tex	Plain
5603	100 g/m ²	15	15	33 tex	33 tex	Twill 2 x 2
6049	118 g/m ²	19,2	15,6	34 tex	34 tex	Plain
5465	140 g/m ²	10	10	66 tex	66 tex	Plain
5903	180 g/m ²	11	11	80 tex	80 tex	4 H satin
5863	270 g/m ²	17	16	80 tex	80 tex	5 H satin
5937	270 g/m ²	8	8	80 x 2 tex	80 x 2 tex	Twill 2 x 2
5935	285 g/m ²	22	20,5	66 tex	66 tex	8 H satin



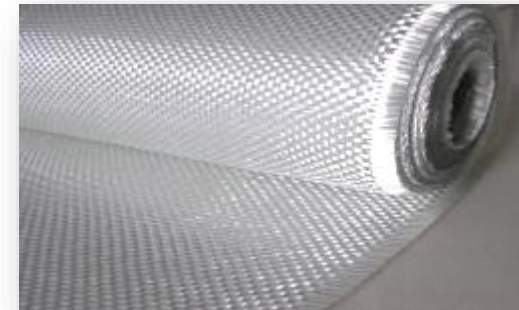
E GLASS FABRICS (SILIONNE)

STYLE	WEIGHT	FIBER COUNT		REINFORCEMENT YARN		WEAVE
		WARP (yarns/cm)	WEFT (picks/cm)	WARP	WEFT	
5445	60 gr/m ²	8,5	8,5	34 tex	34 tex	Plain
5145	100 gr/m ²	23	22	22 tex	22 tex	Plain
	106 gr/m ²	24	23	22 tex	22 tex	Plain
5071	150 gr/m ²	11	11	34 x 2 tex	34 x 2 tex	Plain
	160 gr/m ²	11.8	10.7	68 tex	68 tex	Plain
	162 gr/m ²	11.8	11.5	EC9 68	68 tex	Twill 2 x 2
5492	190 gr/m ²	15	12,5	68 tex	68 tex	4 H satin
5945	190 gr/m ²	14	14	68 tex	68 tex	Twill 2 x 2
6044	200 gr/m ²	17	11.8	68 tex	68 tex	Plain
5912	290 gr/m ²	7,25	7,25	68 x 3 tex	68 x 3 tex	Twill 2 x 2
5512	300 gr/m ²	22	22	68 tex	68 tex	8 H satin
5641	435 gr/m ²	16	16	68 x 2 tex	68 x 2 tex	4 H satin
	600 gr/m ²	22	22	136 x 3 tex	136 x 4tex	Twill 2 x 2



SPECIALTY FABRICS

STYLE	WEIGHT	FIBER COUNT		REINFORCEMENT YARN		WEAVE
		WARP <i>(yarns/cm)</i>	WEFT <i>(picks/cm)</i>	WARP	WEFT	
VERRANNE						
5669/120	100 g/m²	2,6	2,6	200 tex	200 tex	Plain
6034/120	200 g/m²	6	4	200 tex	200 tex	Plain
5373/120	500 g/m²	4	3	660 tex	660 tex	Plain
E GLASS ROVING FABRICS						
6033 B /130	270 g/m²	5	4	300 tex	300 tex	Plain
500 T /125	500 g/m²	2,2	2	1200 tex	1200 tex	Plain
800 T /125	800 g/m²	1,6	1,6	2400 tex	2400 tex	Plain
S2 GLASS FABRICS						
6000/120	500 g/m²	2,1	2,2	1200 tex	1200 tex	Plain
TEXTURED GLASS						
5416	56 g/m²	4	4	70 tex	70 tex	Plain



KNITTED FABRICS FOR COMPLEX SHAPES

WEFT KNITTED FABRICS

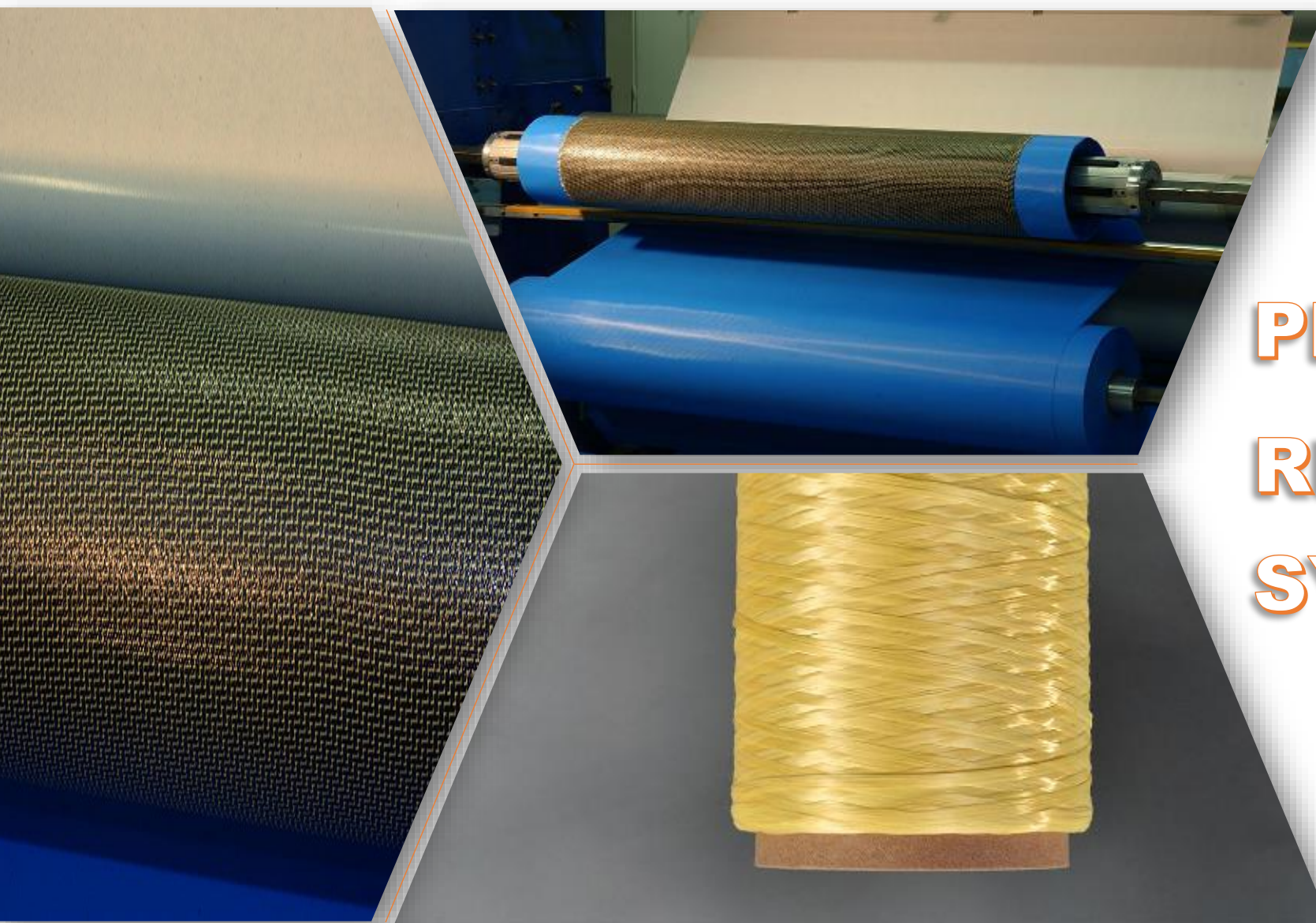
From single unit to medium production run



WARP KNITTED FABRICS

From small to large production run.
Width up to 320 cm





PREPREG RESIN SYSTEMS

AEROSTRUCTURES SYSTEMS

FORMULATION		DRY TG	TYPICAL CURE CYCLE	POST CURING NEEDED	OUTLIFE		INITIAL TACK	CURED DENSITY	COMMENTS
		(DSC)			AMBIANT (weeks)	-18°C (months)			
		NEAT FORMULATION							
LILAS	Epoxy	100°C	120°C / 120min	no	4	12	low	1,55	FAR25 amdt.72§853(a) app. F A4: Accelerated version B: Tacky version
1808NA	Epoxy	120°C	120°C / 75min	no	4	12	moderate	1,18	For UD tape
1721SM	Epoxy	180°C	35-180°C / 30-120mi	no	2	9	low	0,86	



RADOME & ANTENNA SYSTEMS

FORMULATION		DRY TG	TYPICAL CURE CYCLE	POST CURING NEEDED	OUTLIFE		INITIAL TACK			CURED DENSITY	COMMENTS
		(DSC)			AMBIANT (weeks)	-18°C (months)					
		NEAT FORMULATION						FABRIC	UD Tape		
1808S	Epoxy	125°C	120°C/90min		4	12	moderate	X		1,18	22 / Tg. δ = 0,015X band - with qu
1821	Epoxy	166°C	120°C/120min		4	12	moderate	X		0,91	ε' <3 / Tg. δ = 0,015 X band, Ka,Ku - with quartz
1721	Epoxy	180°C	135-180°C / 30-120min		2	9	low	X		0,86	
1730-21	Epoxy modified	255°C	180°C / 180min	X	3	6	high	X		0,86	
1731NS	Epoxy modified	300°C	180°C / 180min	X	3	6	high		X	1,27	
1951	Cyanate-ester	310°C	180°C / 180min	X	4	12	high	X	X	1,24	with rheological agent
1954	epoxy modified cvanate-ester	290°C	135°C / 6h	X	4	12	high	X		1,1	PEG1 : high tack PEG 3: moderate tack



INDUSTRIAL & SPORT – MID & HIGH TEMPERATURE SYSTEMS

FORMULATION		DRY TG	TYPICAL CURE CYCLE	POST CURING NEEDED	OUTLIFE		INITIAL TACK	FABRIC	CURED DENSITY	COMMENTS
		(DSC)			AMBIANT (weeks)	-18°C (months)				
		NEAT FORMULATION								
1115	Epoxy	100°C	120°C / 90min		4	12	low	X	1,56	A4: accelerated version
1120	Epoxy	100°C	120°C / 120min		4	12	low	X	1,62	B: moderate tack version Fire resistant
1808S	Epoxy	125°C	120°C / 90min		4	12	moderate	X	1,18	NS: UD version
1808S A4	Epoxy	120°C	120°C / 30min		4	12		X		snap cure <10min 170°C
1846	Epoxy	155°C	120°C / 90min	X	4	12	moderate	X	1,18	
1721SM	epoxy	188°C	135-180°C / 30-120min		2	9	moderate	X	1,25	without microsphere

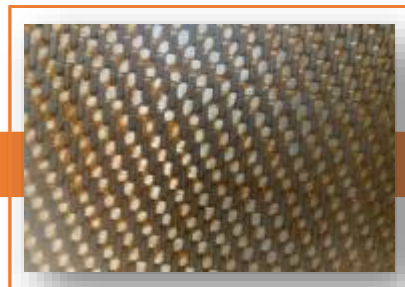
ULTRA-HIGH TEMPERATURE SYSTEMS

FORMULATION		DRY TG	TYPICAL CURE CYCLE	POST CURING NEEDED	OUTLIFE		INITIAL TACK			ADHESIVE TO FOAM AND NIDA	CURED DENSITY	COMMENTS
		(DSC)										
		NEAT FORMULATION			AMBIANT (weeks)	-18°C (months)		FABRIC	UD TAPE			
1731NS	Epoxy modified	300°C	180°C / 180min	X	3	6	moderate		X	-	1,27	
1950	Cyanate-ester	290°C	180°C / 180min	X	4	12	moderate	X		X	1,26	1950-N: UD version
1951	Cyanate-ester	310°C	180°C / 180min	X	4	12	high	X	X	X	1,24	1950-21: with microsphere
1954	Cyanate-ester	290°C	135°C / 6h	X	4	12	high	X		X	1,1	PEG1: high tack1954 PEG3: moderate



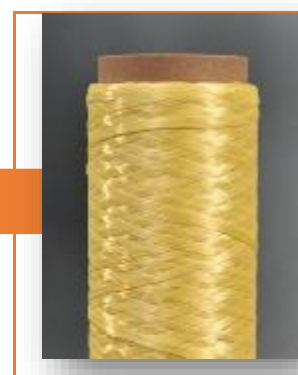
TOOLING SYSTEMS

FORMULATION		DRY TG	WET TG	TYPICAL CURE CYCLE	OUTLIFE		INITIAL TACK	CURED DENSITY	COMMENTS
		(DSC)	(VANHOGRAPHE)						
		NEAT FORMULATION	LAMINATE		AMBIANT (WEEKS)	-18°C			
						(MONTHS)			
1770T	Epoxy	175°C		50°C / 48h	2	6	high	1,19	Tack life : 15 days
1771A	Epoxy	205°C		50°C / 48h	2	6	high	1,19	Aeronautical grade



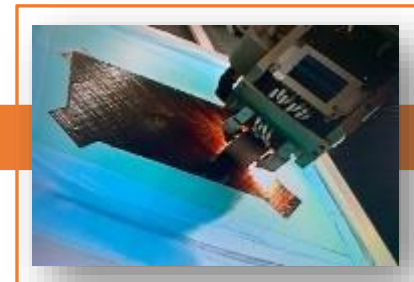
TOWPREG SYSTEMS (Filament winding)

FORMULATION		DRY TG	TYPICAL CURE CYCLE	OUTLIFE		INITIAL TACK	CURED DENSITY	COMMENTS
		(DSC)						
		NEAT FORMULATION		AMBIANT (WEEKS)	-18°C			
					(MONTHS)			
Hydrogen	Epoxy	120°C	TBD	8	12	moderate	1,2	high elongation - suitable for H2 pressure vessels
1213	Epoxy	140°C	120°C / 120min	4	12	high	1,2	Standard epoxy towpreg
1211	Epoxy	170°C	160°C / 120min			high	1,23	Epoxy Tg 170°C
1215	Epoxy	140°C	150°C / 120min	4	12	high	1,2	Fire resistant epoxy
1713F	Epoxy	200°C	135-180°C / 40-120min	3	6	moderate	-	Epoxy Tg 180°C
1950F	Cyanate-ester	290°C	180°C / 180min	4	12	high	1,26	Post curing is necessary



TOWPREG SYSTEMS (Automated Fiber Placement)

FORMULATION		DRY TG	TYPICAL CURE CYCLE	OUTLIFE		INITIAL TACK	CURED DENSITY	COMMENTS
		(DSC)						
		NEAT FORMULATION		AMBIANT (WEEKS)	-18°C			
					(MONTHS)			
1218	Epoxy	102°C	120C / 120min	4	12	low	1,19	¼" towpreg with backing film
1724	Epoxy	190°C	180C / 180min	4	12	low	1,2	¼" towpreg with backing film



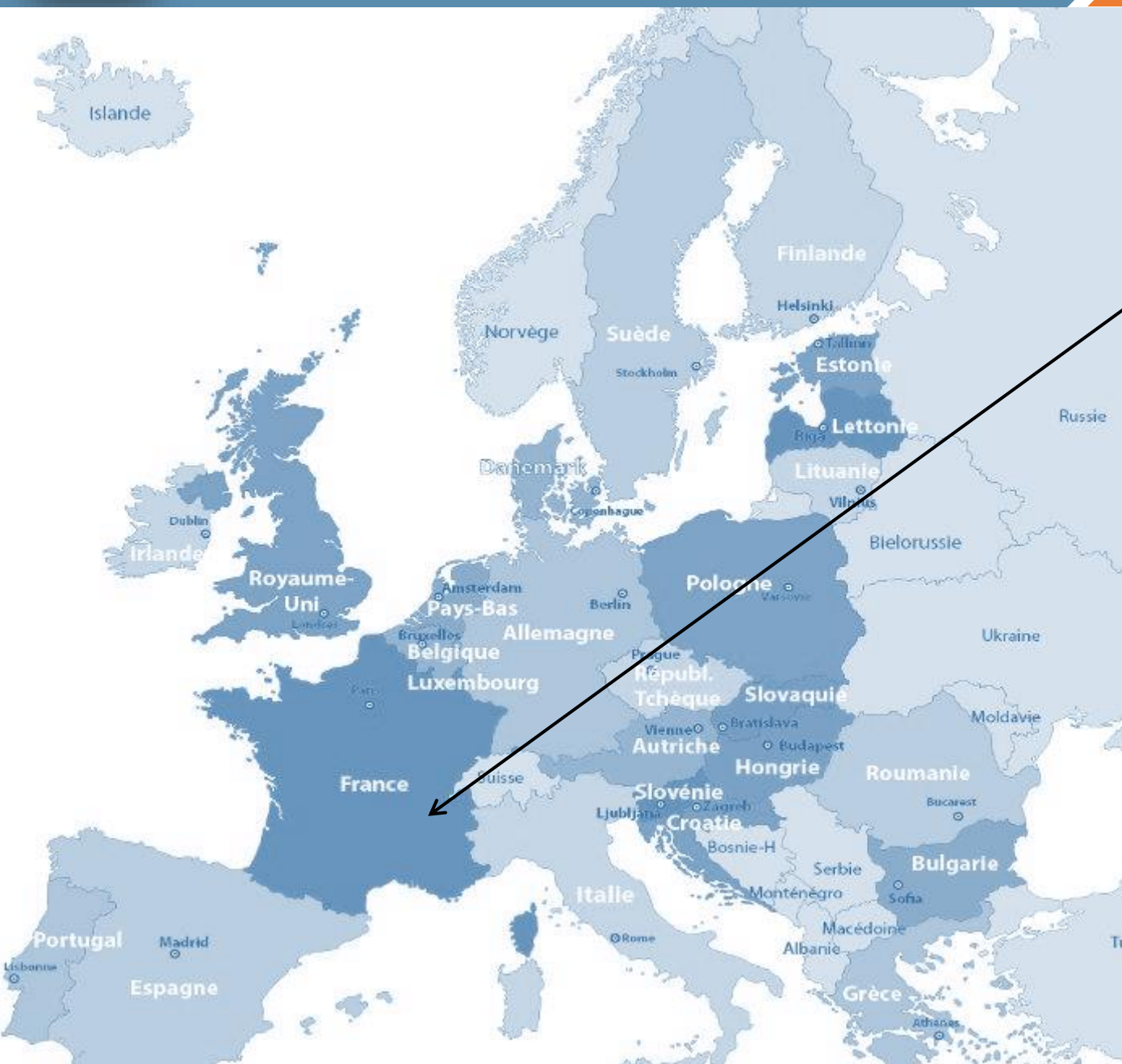
SMC SYSTEMS (Prepreg “paillettes”)

FORMULATION		DRY TG	WET TG	TYPICAL CURE CYCLE	OUTLIFE		INITIAL TACK	CURED DENSITY	COMMENTS
		(DSC)	(VANHOGRAPHE)						
		NEAT FORMULATION	LAMINATE		AMBIANT (WEEKS)	-18°C			
						(MONTHS)			
1814 B	Epoxy	-	-	140°C / 120min	4	12	low	1,26	carbon flakes





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LA SONE

PARIS	565 KM
GENEVE	145 KM
LYON	120KM
GRENOBLE	55 KM

COMPOSITE TEXTILE MATERIALS INNOVATION

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