

Product Selector Guide

Resin System	Description	Outlife at 20°C/70°F (Days)	Initial Cure Temp		Initial Cure Time (Hours)	Post Cure Option	Max Tg Onset* (DMA)		Max Tg Peak* (DMA)		Toughened	Standard Process	Typical Application Areas
			°C	°F			°C	°F	°C	°F			
TOOLING PREPREG — Low Temperature Cure													
LTC102	Epoxy Carbon/Glass Tooling	3	30 – 65	85 – 150	45 – 5	Yes	214	417	232	450	No	Autoclave	Commercial very low temp tooling.
LTC210	Epoxy Carbon/Glass Tooling	4	45 – 70	115 – 160	40 – 4	Yes	202	396	221	430	No	Autoclave	Commercial low temp tooling.
LTC210-1	Epoxy Carbon/Glass Tooling	4	45 – 70	115 – 160	40 – 4	Yes	203	397	230	446	No	Autoclave	Commercial low temp tooling.
LTB300	Epoxy Carbon/Glass Tooling – 30% bio-based	2	45 – 60	115 – 160	12 – 6	Yes	181	348	205	401	No	Autoclave	Commercial low temp epoxy tooling with 30% bio content.
LTB310-1	Epoxy Carbon/Glass Tooling – 30% bio-based	4	45 – 70	115 – 160	40 – 4	Yes	201	394	230	446	No	Autoclave	Commercial low temp epoxy tooling with 30% bio content.
LTC216-3	Epoxy Carbon/Glass Tooling	8	45 – 70	115 – 160	50 – 5	Yes	218	424	242	468	No	Autoclave	Aerospace low temp tooling.
LTC410	Epoxy Long Outlife Tooling	21	65 – 80	150 – 175	16 – 4	Yes	192	378	218	424	Yes	Autoclave	Long outlife, toughened, low temp Aerospace tooling.
LTC400	Epoxy Long Outlife Tooling	30	65 – 80	150 – 175	20 – 6	Yes	207	405	228	442	No	Autoclave	Extra long outlife, low temp Aerospace tooling.
OTS65	Epoxy Oven Cure Tooling	Up to 21	65 – 90	150 – 195	Consult Data Sheet	Yes	129	264	143	289	No	Oven	Out of Autoclave tooling & structures.
BMI-1SC	BMI Tooling & Component	30	185	365	2	Yes	350	662	355	671	No	Autoclave	High temp, high durability Aerospace Tooling.
ADHESIVE FILM													
MTFA500	Adhesive Film	30	80 – 120	175 – 250	16 – 1	No	141	286	150	302	Yes	Autoclave	General purpose film adhesive.
VTFA400	Adhesive Film	21	65 – 120	150 – 250	16 – 1	No	135	275	147	297	Yes	Autoclave	General purpose film adhesive with versatile cure.
MTFA400	Adhesive Film, High Temperature Service	30	80 – 150	175 – 300	16 – 1	Yes	170	338	190	374	Yes	Autoclave	General purpose, higher service temp.
COMPONENT PREPREG — Low to Medium Temperature Cure													
LTC250-2XL	Low Temp Cure	5	50 – 75	120 – 165	40 – 4	Yes	130	266	144	291	Yes	Autoclave/Oven	Lower temp cure with good toughness and visual clarity. Excellent for low cost prototypes.
MTC575	Med Temp Cure, Cosmetic	30	80 – 120	175 – 250	16 – 1	No	136	277	149	300	Yes	Autoclave	Premium visual system. Available on limited reinforcement range.
MTC510	Med Temp Cure, Cosmetic & General Purpose	30	80 – 120	175 – 250	16 – 1	No	131	268	148	298	Yes	Autoclave	General purpose system also with excellent optical clarity for cosmetic carbon parts. Low viscosity version available.
MTE500	Next Generation Multi-Purpose Component System	60	120	250	1	No	140	284	155	311	Yes	Autoclave	General purpose system with optimised handling characteristics.
MTC275	Med Temp Cure, Out of Autoclave	30	80 – 120	175 – 250	16 – 1	No	121	250	135	275	Yes	Autoclave/Oven	General purpose system with low tack that can process OOA.
MTC475	Med Temp Cure, High Service Cosmetic	30	80 – 120	175 – 250	16 – 1	Yes	190	374	206	403	Yes	Autoclave	Higher service temp system with good visual finish.
MTC580 Series	Med Temp Cure, Flow Controlled	30	185	250	16 – 1	Yes	311**	600	336**	626	Yes	Autoclave/Oven/Press	General purpose system with optimised flow control and high toughness. Core bondable. Snap-cure versions available.
MTC811	Med Temp Cure, Core Bondable	60	90 – 120	185 – 250	14 – 1	No	121	240	128	262	Yes	Autoclave	Highly toughened system for structures requiring good damage tolerance and impact performance.
MTC400	Med Temp Cure, High Temp Structural	30	80 – 135	175 – 275	16 – 1	Yes	227	441	238	460	Yes	Autoclave	High service temp (typically up to 180°C (356°F)) components in Motorsport, Automotive and Aerospace. 160°C (320°F) wet Tg.
MTC400-1	Med Temp Cure, High Temp Structural	30	80 – 135	175 – 275	16 – 1	Yes	207	405	224	435	Yes	Autoclave/Oven/Press	Higher service temp (typically up to 150°C (302°F)) structural components in Motorsport, Automotive and Aerospace.
MTC412	Med Temp Cure, High Temp Service OOA	30	80 – 150	175 – 300	16 – 1	Yes	170	338	190	374	Yes	Autoclave/Oven	High service temp and Out of Autoclave processing typically for Aerospace applications.
MTC700	Med Temp Cure, High Temp Structural	30	135	275	3 – 6	Yes	203	397	212	414	Yes	Autoclave	Highly toughened with outstanding mechanical properties across reinforcement types for Motorsport, Automotive and Aerospace.
MTB350	Med Temp Cure – 30% Bio-based	6-12 months	80 – 140	185 – 285	16 – 15 mins	Yes	171	338	190	362	Yes	Autoclave	Multi-purpose 30% bio content system with exceptional outlife. For use with all fibre types, including flax.
COMPONENT PREPREG — Versatile Temperature Cure													
VTC401	General Purpose, Fast Cure Component, Core Bondable	21	65 – 140	150 – 285	16 – 15 mins	No	130	266	139	282	Yes	Autoclave/Oven/Press	Versatile system. Low temp cure on lower cost large structures, but also with high temp "snap" cure capability.
VTC410	General Purpose, Fast Cure Component	21	65 – 140	150 – 285	16 – 15 mins	Yes	190	374	206	403	Yes	Autoclave/Oven/Press	Versatile system. Low temp cure for lower cost, larger structure with increased service temperature.
VTC212	Surfacing System, Out of Autoclave	21	65 – 120	150 – 250	16 – 1	Yes	135	275	140	284	Yes	Oven	Versatile system with good Out of Autoclave processing for high quality surface finishes.
OPS75	Oven Panel System	Up to 21	65 – 130	150 – 265	Consult Data Sheet	No	140	284	160	320	Yes	Autoclave/Oven	Automotive body panels with excellent retained surface finish once environmentally cycled.
APS75	Autoclave Panel System	21	65 – 130	150 – 265	Consult Data Sheet	Yes	170	338	191	376	Yes	Autoclave	Automotive body panels with higher service temp than OPS75.
COMPONENT PREPREG — High Service Temperature													
HTC400	High Temp Cure, High Service Temp	30	180	355	2	No	263	505	272	522	Yes	Autoclave	High service temp Automotive and Aerospace structures.
CEL100-1	Cyanate Ester, Low Temp Cure	2	70 – 90	160 – 195	22 – 6	Yes	296	565	311	592	No	Autoclave	High service temp with a required postcure, suitable for Automotive components.
CEM100	Cyanate Ester, Very High Service Temp	21	120 – 135	250 – 275	3 – 2	Yes	345	653	400	752	No	Autoclave	High service temp Automotive and Space components with low-outgassing requirements.
CEM160	Cyanate Ester, High Service Temp, available on UD	Up to 21	120 – 135	250 – 275	3 – 2	Yes	275	527	300	572	No	Autoclave	High service temp Automotive and Space components with low-outgassing requirements.
COMPONENT PREPREG — Flame Retardant													
FRVC411	Flame Retardant, Core Bondable	21	65 – 140	150 – 285	16 – 15 mins	Yes	155	311	176	349	Yes	Autoclave/Oven/Press	Flame retardant for Aerospace and Automotive structures.
MTC510FRB	Flame Retardant, Med Temp Cure	30	80 – 120	175 – 250	16 – 1	No	130	266	148	298	Yes	Autoclave	General purpose flame retardant system.
PS200	Flame Retardant, Bio-based	21	100 – 130	210 – 265	3 – 1	Consult SHD	280	536	330	626	No	Consult SHD	Bio-derived, highly flame retardant system for fire containment applications such as battery enclosures.
FR308	Flame Retardant, Bio-based	21	100 – 130	210 – 265	3 – 1	Consult SHD	142	288	181***	358***	No	Consult SHD	Bio-derived, highly flame retardant system for interior structures, typically to replace phenolic resins.
FR308P	Flame Retardant, Bio-based	21	100 – 130	210 – 265	3 – 1	Consult SHD	183	361	210***	410***	No	Consult SHD	Bio-derived, highly flame retardant system with improved heat release properties over FR308 for interior structures.

CAMBIUM INVENTED - SHD MANUFACTURED	Applications	Char Yield	Density	Tg (Dry)	Advantages
ApexShield 1000 Phthalonitrile Neat Resin System	Ablatives, Precursor to carbon-carbon thermal protection	78%	1.23 g/cc	Up to 784°F (418°C)	Solvent free, very low melt viscosity, room temperature stable, no refrigeration required.
Phthalonitrile Machinable Billets	Carbon fiber or Fiberglass Reinforced. Contact us for sizes & formats.				A custom shaped, uniform, solid, composite reinforced machinable Phthalonitrile billet block.

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- Product(s) not available in the USA
- Product(s) not available in Europe/the UK

SHD Composites continuously reviews and updates its Product Selector Guide and Technical Data Sheets. Please ensure that you have the current version, by contacting your SHD Composites sales contact and quoting the issue date.

- * Tg and service temperatures quoted in this Product Selector Guide are maximum values, possibly achieved after a post cure cycle depending on the product. Please consult Technical Data Sheets for details.
- ** Typical suggested maximum service temperature of 180°F.
- *** FR308/P can potentially reach a Peak Tan θ Tg above 232°C/450°F after high temperature post-cure cycles.

www.shdcomposites.com
+44 (0) 1529 307629
sales@shdcomposites.com
us-sales@shdcomposites.com
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