

Selector Guide

This Selector Guide is a quick index of our standard resins and reinforcements. Product data sheets that provide detailed information about specific prepreg systems are available upon request.

Nelcote™ Advanced Composite Prepregs for Critical Applications



Aircraft primary and secondary structures, interiors, VLJs, UAVs

Ablative materials for rocket nozzles, motors and heat shields and thermal insulation

RF and microwave materials for radomes, reflectors and signature control structures.

 **PARK ELECTROCHEMICAL CORP.**
Advanced Material Technologies



Nelcote Advanced Composites - Features, Benefits and Applications

Resin System	Product Name	Features
Epoxy	E717B	A press-cure grade epoxy resin system. Self adhesive and low telegraph properties for sandwich panels. Fire-retardant. Compatible with room temperature storage
	E718	General use epoxy prepreg. Good low pressure consolidation
	E746	Modified epoxy resin system. Excellent mechanical properties after long-term high temperature exposure. Good RF properties. Meets requirement of Mil-R-9300B Type II. Service temperatures up to 500°F
	E752	Tough, 350°F cure system designed for aerospace primary structures. High service temperature and moisture resistance. Wet service temperature up to 250°F
	E761	Aerospace / commercial grade epoxy. Self adhesive prepreg for sandwich applications. Flame retardant. Wide process latitude. Wet service temperature up to 160°F
	E765	Aerospace grade epoxy resin system. FAA Design Allowables databases available. Wide processing window. Wet service temperature up to 180°F
	E766	Toughened, low tack epoxy resin system. Self-adhesive prepreg for sandwich applications. Flame retardant. Controlled flow properties. Service temperature up to 160°F
Phenolic	F502	Combines high-strength and ablative properties for demanding applications. Low thermal expansion
	F554	High purity silica filled resin system coated on commercial or aerospace grade silica fabric. Combines higher strength and ablative properties for demanding applications. Low thermal expansion
	F555	Carbon-loaded resin system. Combines high-strength and ablative properties for demanding applications. Low thermal expansion. Also available in a low density version
	F557	High purity Silica filled resin system coated on commercial or aerospace grade silica fabric. Combines higher strength and ablative properties for demanding applications. Low thermal expansion
	F562	Elastomer modified resin system coated on silica or carbonized rayon
Polyester	P600	General purpose polyester resin system. Non-styrenated / Low VOC. Good alternative to wet-layup processing
	P602	RF grade polyester resin system. Flame retardant. Meets requirements of Mil-R-7575 Grade A Class 3. Non-styrenated / Low VOC
	P615 SuperVue	Modified vinyl ester and polyester resin specifically designed for use with Spectra® fabric for critical RF applications. Low Dk/Df
	P650M	Modified diallylphthalate resin system. Excellent wet electrical properties. Non-styrenated / Low VOC
	P650R	Designed for optical clarity. Good mechanical and electrical properties. Non-styrenated / Low VOC
	P670F	High temperature service. Flame retardant. Excellent electrical and mechanical properties. Non-styrenated / Low VOC
	P670I	High temperature service. Flame retardant. Excellent electrical and mechanical properties. Non-styrenated / Low VOC Antimony free
Specialty	S860 Silicone	Silicone resin system with excellent high temperature properties
	V303 Polyimide	Non-MDA condensation polyimide resin system. Very high service temperature
	V341 Polybutadiene	Designed for airborne, shipborn and undersea RF applications. Self adhesive prepreg for foam core sandwich panels. Excellent chemical and fungus resistance
	V376 Cyanate Ester	Designed for airborne, shipboard, and undersea applications. Excellent RF properties (low loss). Low moisture absorption. Good mechanical properties in hot/wet conditions. Self adhesive prepreg for sandwich applications. Ideal alternative to BMI and polyimide systems

Current Applications	Reinforcements	Product Forms			Cure Temp °C / °F	Dry Tg by DMA °C / °F	Cure Methods		
		Fabric	Uni-tape	CMC/ Biased Tape			Autoclave	Vacuum	Press Molding
Aircraft and mass-transit interiors	Fiberglass	X			120 / 250	129 / 265			X
Industrial, Recreational	Fiberglass, Carbon	X	X		82 - 177 180 - 350	165 / 330	X	X	X
Aircraft structures, Radomes, Nacelles, Inlet ducts, Fairings	Fiberglass, Quartz (including Astroquartz)	X			177 / 350	170 / 340	X		X
Aircraft structures	Fiberglass, Carbon	X	X		132-177 270-350	172 / 390	X	X	X
Aircraft and mass-transit interiors, Aircraft structures, Radomes	Fiberglass, Carbon, Aramid (including Kevlar®), Spectra®, Quartz (including Astroquartz)	X	X		120 / 250	115 / 240	X	X	X
Aircraft primary and secondary structures, Radomes	Fiberglass, Carbon, Spectra®, Quartz (including Astroquartz)	X	X		120-149 250-300	165 / 330	X	X	X
Sandwich panels, Radomes	Fiberglass, Carbon, Aramid (including Kevlar®)	X			120-149 250-300	93 / 200	X	X	X
Ablative rocket nozzles, Ducting, Secondary structures	Fiberglass, Carbon, Quartz (including Astroquartz)	X		X	163 / 325	260 / 500	X		X
Ablative rocket nozzles, Combustion chambers, Heat shields, Rocket motor throat sections, Exhaust gas management	Silica	X		X	127 / 325	260 / 500	X		X
Ablative rocket nozzles, Combustion chambers, Heat shields, Rocket motor throat sections	Carbonized Rayon (including C2 and NARC)	X		X	177 / 350	260 / 500	X		X
Ablative rocket nozzles, Combustion chambers, Heat shields, Rocket motor throat sections, Exhaust gas management	Silica	X		X	163 / 325	260 / 500	X		X
Ablative rocket nozzles, Combustion chambers, Heat shields, Rocket motor throat sections, Exhaust gas management	Carbonized Rayon (including C2 and NARC), Silica	X			163 / 325	260 / 500	X		X
Aircraft structures, Industrial parts	Fiberglass	X			82-120 180-250	71 / 160	X	X	X
Aircraft structures, Radomes	Fiberglass	X			120-149 250-300	71 / 160	X	X	X
Radomes, Antenna	Spectra®	X			110 / 230	71 / 160	X	X	X
Aircraft structures, Radomes, Antenna, Embossing die fabrication	Fiberglass	X			120-149 250-300	120 / 250	X	X	X
Applications which require optical clarity, Aircraft lighting, etc.	Fiberglass	X			120-149 250-300	120 / 250	X	X	X
Aircraft structures, Radomes, Tooling	Fiberglass	X			120-149 250-300	120 / 250	X	X	X
Aircraft structures, Radomes, Tooling	Fiberglass	X			120-149 250-300	120 / 250	X	X	X
Aircraft structures, Radomes	Fiberglass	X			177 / 350	260 / 500	X		X
Aircraft structures, Radomes	Fiberglass, Quartz (including Astroquartz), Carbon	X			177 / 350	315 / 600	X		X
High performance radomes, Reflectors, Antennas, Signature control devices	Fiberglass, Quartz (including Astroquartz)	X			177 / 350	93 / 200	X		X
High performance radomes, Reflectors, Antennas, Signature control devices	Fiberglass, Quartz (including Astroquartz)	X			177 / 350	204 / 400	X		X

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Resin/Reinforcement	Cure Temp. °F (°C)	Dielectric Constant X-Band*	Loss Tangent X-Band*	Service Temp. °F (°C)
V-341 Polybutadiene / Quartz	350 (177)	3.1	0.001	200 (93)
V-376 Cyanate Ester / Quartz	350 (177)	3.2	0.005	400 (204)
V-376 Cyanate Ester / Fiberglass	350 (177)	4.0	0.011	400 (204)
E-761 Epoxy / Quartz	250 (121)	3.4	0.009	200 (93)
E-761 Epoxy / Spectra®	225 (107)	2.7	0.004	180 (82)
E-761 Epoxy / Fiberglass	250 (121)	4.2	0.013	200 (93)
E-746 Hi-Temp. Epoxy / Quartz	350 (177)	3.6	0.012	500 (260)
E-746 Hi-Temp. Epoxy / Fiberglass	350 (176)	4.2	0.016	500 (260)
E-765 Epoxy / Quartz	250 (121)	3.4	0.015	275 (135)
E-765 Epoxy / Fiberglass	250 (121)	4.5	0.020	275 (135)
P-670I Polyester / Fiberglass	250 (121)	4.0	0.014	250 (120)
P-615 SuperVue / Spectra	230 (110)	2.4	0.004	160 (71)

* Nominal electrical values, subject to fiber volume and test technique.

**E-765 Family of Materials and FFA Accepted
Lamina & Laminate Design Allowable Databases**

Material	FAW (gsm)	CPT in. (mm)
3K Plain Weave Carbon	195	0.009 (0.23)
6K five Harness Satin Carbon	370	0.016 (0.41)
Hot Melt Unidirectional Carbon	150	0.005 (0.13)
7781 Fiberglass	295	0.009 (0.23)
12K Twill Carbon	370	0.016 (0.41)
12K Plain Weave Carbon	195	0.009 (0.23)

Manufacturing Aids

PeelCote® Resin coated for use as first ply against mold surface, Reduces finish labor
Applications: Improve laminate surface, Prep for bonding/paint

CoreFix® Disposable prepreg used to stabilize honeycomb materials during handling and machining. Several advantages versus traditional prepregs and double-backed tapes
Applications: Precision honeycomb machining aid

Important Notice:

Nelcote™ makes no warranties, express or implied, including but not limited to, any implied warranty of merchantability or fitness for a particular purpose.

User is responsible for determining whether the product is fit for a particular purpose and suitable for user's method of application. Please remember that many factors can affect the use and performance of a Nelcote product in a particular application. The materials to be bonded with the product, the surface preparation of those materials, the product selected for use, the conditions in which the product is used, and the time and environmental conditions in which the product is expected to perform are among the many factors that can affect the use and performance of a Nelcote product. Given the variety of factors that can affect the use and performance of a Nelcote product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the Nelcote product to determine whether it is fit for a particular purpose suitable for the user's method of application.