

E-765 Epoxy Prepregs

Park's E-765 is tough 250°F cure prepreg system designed to replace 350°F cure systems in many aircraft structural applications.

Key Features & Benefits

- Designed to replace first generation 350°F (176°C) cure systems.
- Wide cure temperature process window of 260°F to 350°F
- Exhibits very low void content, i.e., <2% after vacuum cure.
- Superior fiber property translation.
- 180°F Wet service temperature after ~270°F cure
- Good tack and drape characteristics after 30 days at room temperature

Product Forms

- Available on a wide variety of reinforcements including fiberglass and carbon
- Unitape and glass broadgoods up to 60 inches wide
- Available as unidirectional carbon tape
- Compatible with autoclave, vacuum bag/oven or press cure processes

Applications / Qualifications

- Primary Aircraft Structures
 - Fuselage
 - Wing
 - Control Surfaces
- Secondary Aircraft Structures
 - Fairings
 - Doors
 - Radomes
 - Bulkheads

Global Availability

For Information about Park's materials:

Americas	+1.316.283.6500
Asia Pacific	+656.861.7117
Europe	+33-562-985290
info@parkelectro.com	
www.parkelectro.com	

E-765 Epoxy Prepregs

Nominal Prepreg and Laminate Physical Properties

Reinforcement	T700 Uni Tape	3K PW	6K 5HS	7781 E-Glass
Fiber Areal Weight (gsm)	150	193	370	303
Resin Solids (%)	35±3	38±3	40±3	38
Volatile Content (% Max)	1.0	1.0	1.0	1.0
Flow – 275F @ 15psi (%)	13±7	15±6	16±6	15±6
Tack	Medium	Medium	Medium	Light-Medium
Tg (dry, by DMA)	165° C / 330°F			
Gel time @ 275F (min)	4	4	4	4
Cure per ply thickness (mils.)	5.6	8.9	15.2	9.8

Nominal Prepreg and Laminate Physical Properties

Reinforcement	12K 2x2 Twill	12K 2x2 Twill	12k 2x2 BW	120 E-Glass
Fiber Areal Weight (gsm)	370	670	635	107
Resin Solids (%)	40 +/- 3	40 +/-3	35 +/-3	45
Volatile Content (% Max)	1.0	1.0	1.0	1.0
Flow – 275F @ 15psi (%)	18±6	18±6	18±6	18
Tack	Light -Medium	Light-Medium	Light -Medium	Medium
Tg (dry, by DMA)	165° C / 330°F			
Gel time @ 275F (min)	2 - 6	2 - 6	2 – 6	4
Cure per ply thickness (in.)	0.015	0.022	0.023	0.005

Selected Laminate Electrical Properties

Reinforcement	Frequency	Dielectric Constant (Dk)	Loss Tangent (Df)
E-765 w/ E-Glass	9.375 GHz	4.5	0.020
E-765 w/ Quartz	9.375 GHz	3.4	0.015

Sandwich Panel Properties

Reinforcement	Property	Test Method	Mean Value
E-765 w/ T300 3KPW	Climbing Drum Peel	ASTM-D-1781	Bag Side: 4.3 in lb/in Tool Side: 4.3 in lb/in
	Flatwise Tensile Strength	ASTM-C-297	1037 psi

All test data provided are typical values and not intended to be specification values. For review of critical specification tolerances, please contact a Park representative directly. Park reserves the right to change these typical values as a natural process of refining our testing equipment and techniques.

E-765 Epoxy Prepregs

Laminate Mechanical Properties

Reinforcement	T700 Uni Tape	T300 3K PW	T300 6K 5HS	T300 6K 5HS	7781 E-Glass
Fiber Areal Weight (gsm)	150	193	370	370	300
Cure Type	Vacuum/Oven	Vacuum/Oven	Vacuum/Oven	Autoclave	Vacuum/Oven
Tensile Strength, 0° (Ksi)					
-65°F Dry	370	93	89	91	73
70°F Dry	370	90	86	86	65
180°F Dry	349	93	98	99	61
180°F Wet	333	96	--	85	50
ASTM-D-3039-95					
Tensile Modulus (Msi)					
-65°F Dry	18.8	8.5	9.5	9.9	3.9
70°F Dry	18.7	8.2	9.3	9.3	3.7
180°F Dry	18.2	7.9	9.0	9.2	3.6
180°F Wet	18.6	8.0	--	8.9	3.4
ASTM-D-3039-95					
Compressive Strength (Ksi)					
-65°F Dry	211	109	127	125	85
70°F Dry	180	96	114	115	73
180°F Dry	177	77	83	82	61
180°F Wet	107	57	--	45	52
SACMA 1-94					
Compressive Modulus (Msi)					
-65°F Dry	17.9	7.8	10.3	10.1	4.1
70°F Dry	18.1	7.7	8.8	8.9	3.8
180°F Dry	18.4	7.5	8.9	8.8	3.7
180°F Wet	18.0	7.5	--	8.5	3.7
SACMA 1-94					
Short Beam Shear (Ksi)					
-65°F Dry	17.4	10.8	--	--	9.8
70°F Dry	12.9	10.4	10.9	11.3	8.1
180°F Dry	9.4	8.4	--	--	7.0
180°F Wet	5.7	5.1	--	--	4.7
ASTM-D-2344					
In-plane Shear Strength, V-notched (Ksi)					
-65°F Dry	25.6	21.1	--	20.7	23.7
70°F Dry	20.0	18.9	--	18.1	19.0
180°F Dry	15.7	14.3	--	14.9	15.2
180°F Wet	10.7	12.2	--	10.4	11.9
ASTM-D-5379-93					

All test data provided are typical values and not intended to be specification values. For review of critical specification tolerances, please contact a Park representative directly. Park reserves the right to change these typical values as a natural process of refining our testing equipment and techniques.

E-765 Epoxy Prepregs

Laminate Mechanical Properties

Reinforcement	6K 4HS IM7	12K 2x2 Twill	12K 2x2 Twill	12K BW	120 E-Glass
Fiber Areal Weight (gsm)	203	370	670	635	107
Cure Type	Autoclave	Vacuum/Oven	Autoclave	Vacuum/Oven	Vacuum/Oven
Tensile Strength, 0° (Ksi)					
-65°F Dry	--	--	--	--	--
70°F Dry	131	122	98	114	53
180°F Dry	--	--	--	--	--
180°F Wet	--	--	--	--	--
ASTM-D-3039-95					
Tensile Modulus (Msi)					
-65°F Dry	--	--	--	--	--
70°F Dry	11.0	8.4	10.3	10.3	2.4
180°F Dry	--	--	--	--	--
180°F Wet	--	--	--	--	--
ASTM-D-3039-95					
Compressive Strength (Ksi)					
-65°F Dry	--	--	--	--	--
70°F Dry	110	107	101	82	63
180°F Dry	88	--	--	--	--
180°F Wet	77	--	--	--	--
SACMA 1-94					
Compressive Modulus (Msi)					
-65°F Dry	--	--	--	--	--
70°F Dry	9.5	8.1	10.4	8.3	2.6
180°F Dry	9.0	--	--	--	--
180°F Wet	11.1	--	--	--	--
SACMA 1-94					
Short Beam Shear (Ksi)					
-65°F Dry	--	--	--	--	--
70°F Dry	10.3	8.8	--	7.7	9.3
180°F Dry	9.3	--	--	--	--
180°F Wet	7.3	--	--	--	--
ASTM-D-2344					

All test data provided are typical values and not intended to be specification values. For review of critical specification tolerances, please contact a Park representative directly. Park reserves the right to change these typical values as a natural process of refining our testing equipment and techniques.

E-765 Epoxy Prepregs

Prepreg Storage Life

- Out Life: 30 days @ 75°F
- Shelf Life: 6 months @ 0°F
- Tack Life: 21 days @ 75°F

Note: The following guidelines are provided to assist Park material users with general recommendations for successful processing. The recommendations are for general review purposes only and process adjustments may be required to achieve optimum results in your specific manufacturing environment.

Autoclave Cure Cycle

- Apply 24" Hg vacuum (minimum) for a minimum of 1 hour before cure
- Apply 40 -100 psi autoclave pressure, vent vacuum when pressure reaches 15 – 20 psi
- Ramp product temp to 270-280°F at 1 – 5° F (0.05 – 3°C)/min
 - For Laminates > 0.125" thick, hold at 180°F for 60 minutes
- Hold product at 270-280°F for 110-130 minutes
- Cool to 150°F at 3 – 10°F/min prior to releasing autoclave pressure

Vacuum/Oven Cure Cycle

- Apply 25" Hg vacuum (minimum) for a minimum of 1 hour before cure
- Ramp product temp to 270-280°F at 1 – 5° F (0.05 – 3°C)/min
 - For laminates > 0.125" thick, hold at 180°F for 60 minutes
- Hold product at 270-280°F for 110-130 minutes
- Cool to 150°F at 3 – 10°F/min

Thick Laminate Cure Cycle

- Slower ramp rate and multiple dwell times below 190°F are critical to remove excess energy from the system and avoid dangerous exotherms.
- Contact your Park representative to discuss specific part process requirements to optimize processing of E-765.
- Failure to properly control the exotherm can lead to a potential safety hazard and/or degradation of final material performance.

All test data provided are typical values and not intended to be specification values. For review of critical specification tolerances, please contact a company representative directly. The above processing guides are recommendations only and intended for general review purposes. Process adjustments may be required to achieve optimum results in your specific manufacturing environment.

Park Electrochemical Corp. reserves the right to make changes without notice to any products described herein. Park does not assume any liability arising out of the application or use of any product described herein; and it does not grant any license under its patent or other rights or any such rights of others. Park also disclaims all warranties whether expressed, implied or statutory, including implied warranties of merchantability or fitness for a particular purpose.

Aeroglide™, CoreFix®, Easycure™, Nelco®, Nelcote®, Nova™, PeelCote™ and Powerbond™ are trademarks of Park Electrochemical Corp.