

# Aerospace Composite Materials

## Product Overview

### E-752 Epoxy Prepregs

Park's E-752 is a toughened, 365°F cure epoxy system designed for demanding structural applications up to 265°F/wet. E-752 offers a good balance of toughness, high service temperature and good moisture resistance, as well as excellent tack and drape. Formulated for both oven and autoclave cure, E-752 provides for easy processing with oven cure, without sacrificing mechanical properties.

#### Key Features & Benefits

- Specifically designed to allow both oven cure and autoclave cure
- Service temperatures up to 265°F/wet
- Controlled flow for ease of processing
- Flexible cure temperature 270°F to 365°F
  - o Good mechanical properties can be achieved through oven curing at 270°F, followed by post-cure at 365°F
- Self-adhesive grade for sandwich panel applications

#### Product Forms

- Available on a wide variety of reinforcements, including fiberglass and graphite
- Fabrics and Unidirectional Tape available up to 24" (61 cm) wide
- Compatible with Autoclave, Vacuum Bag/Oven or Press Molding processes

#### Applications / Qualifications

- Primary and Secondary Aircraft Structures
- Ducting
- Fairings
- Nacelles

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### E-752 Epoxy Prepregs

#### Nominal Prepreg and Laminate Physical Properties

Reinforcement	3K PW G30-500	6K 5HS G30-500	12K 2x2 Twill	IM7 Unitape	12K G30-500 Unitape
Fabric Area Weight (gsm)	193	380	380	145	145
Prepreg Resin Content (%)	32 – 40	35 – 43	35 – 43	35	35
Resin Flow (275°F, 50psi) (%)	15	6 – 20	--	15	15
Volatiles (275°F, 8 min) (%)	< .5	< .5	< .5	< .5	< .5
Gel Time (min)	5 – 12	5 – 12	5 – 12	5 – 12	5 – 12
Dry Tg / Wet Tg (DMA)	197°C dry / 182°C wet				

\*Note: All values are nominal, actual values will vary

#### Sandwich Panel Properties

Reinforcement	Property	Test Method	Mean Value
3K PW G30-500 39 – 42% RC	Climbing Drum Peel	ASTM-D-1781	4.6 in lb/in
	Flatwise Tensile Strength	ASTM-C-297	350 psi (core failure)

#### Prepreg Storage Life

Tack Life: 21 days @ 75°F  
 Out Life: 21 days @ 75°F  
 Shelf Life: 12 months @ 0°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.

#### Vacuum Bag / Oven Cure Cycle

- Apply 1.0 bar vacuum for 1 hour before beginning heat cycle
  - Heat at 0.5 – 3°F/min from room temperature to 230 ± 5°F
  - Hold at 230 ± 5°F for 60 minutes
  - Heat at 0.5 – 3°F/min to 365 +/-5°F and hold for 125± 5 minutes
  - Cool to 160°F at no more than 7°F/min
- Alternate Cycle: Heat at 0.5 – 3°F /min to 260 ± 5°F and cure for 120 minutes, followed by 120 min free standing post-cure @ 360 +/-5°F.

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.

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### E-752 Epoxy Prepregs

#### Laminate Mechanical Properties

Reinforcement	IM7 UniTape	3K PW HTS	6K 5HS G30-500	12K 2X2 TW HTS
<b>Fiber Area Weight</b>	145 gsm	378gsm	378gsm	378gsm
<b>Cure Cycle</b>	365°F Autoclave	365°F Oven	365°F Oven	365°F Oven
<b>Tensile Strength, 0° (Ksi)</b> -65°F Dry 75°F Dry 250°F Dry 250°F Wet ASTM-D-3039		132 142 -- 135	137.2 147.3 130.9	129.1
<b>Tensile Modulus, 0° (Msi)</b> -65°F Dry 75°F Dry 250°F Dry 250°F Wet ASTM-D-3039		9.2 9.3 -- 9.2	9.8 9.4 9.4	9.4
<b>Compressive Strength (Ksi)</b> -65°F Dry 75°F Dry 250°F Dry 250°F Wet SACMA 1R-94		124 112 91 54	119 101 78	117 93
<b>Compressive Modulus (Msi)</b> -65°F Dry 75°F Dry 250°F Dry 250°F Wet SACMA 1R-94		-- 8.9 8.5 8.7 8.6	-- 9.4 9.2 9.5	-- 8.7 8.5
<b>In-Plane Shear Strength (Ksi)</b> -65°F Dry 75°F Dry 250°F Dry 250°F Wet ASTM-D-3518		17.5 13.2 -- 5.1	-- 14.3 12.8 9.3	-- 11.4 12.5
<b>In-Plane Shear Modulus (Msi)</b> -65°F Dry 75°F Dry 250°F Dry 250°F Wet ASTM-D-3518		0.82 0.69 -- 0.27	-- 0.7 0.6 0.6	-- 0.67 0.52 0.37
<b>Open-Hole Compr. Strength (Ksi)</b> 75°F Dry 250°F Wet ASTM-D-6484		-- 45.7 29.7	47.6	43.2
<b>Comp. Strength After Impact (ksi)</b> 75°F Dry		33.4		

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