

Aerospace Composite Materials

Product Overview

E-752 Epoxy Prepregs

Park's E-752 is a toughened, 185°C cure epoxy system designed for demanding structural applications up to 130°C/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 130°C/wet
- Controlled flow for ease of processing
- Flexible cure temperature 132°C to 185°C
 - o Good mechanical properties can be achieved through oven curing at 132°C, followed by post-cure at 185°C
- 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 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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Nominal Prepreg and Laminate Physical Properties

Reinforcement	3K PW HTS40/HTS45	6K 5HS HTS40/HTS45	12K 2x2 Twill	IM7 Unitape	12K HTS40/HTS45 Unitape
Fabric Area Weight (gsm)	193	380	380	145	145
Prepreg Resin Content (%)	32 – 40	35 – 43	35 – 43	35	35
Resin Flow (135°C, 345kPa) (%)	15	6 – 20	--	15	15
Volatiles (135°C, 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 HTS40/HTS45 39 – 42% RC	Climbing Drum Peel	ASTM-D-1781	20.5 N m/m
	Flatwise Tensile Strength	ASTM-C-297	2413 kPa (core failure)

Prepreg Storage Life

Tack Life: 21 days @ 24°C
Out Life: 21 days @ 24°C
Shelf Life: 12 months @ -18°C

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 100 kPa vacuum for 1 hour before beginning heat cycle
- Heat at 0.3 – 1.5°C/min from room temperature to 110 ± 5°C
- Hold at 110°C for 60 minutes
- Heat at 0.3 – 1.5°C/min to 185 +/-3°C and hold for 125± 5 minutes
- Cool to 71°C at no more than 5°C/min

Alternate Cycle: Heat at 0.3 – 1.5°C /min to 127°C and cure for 120 minutes, followed by 120 min free standing post-cure @ 182 +/-3°C.

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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Laminate Mechanical Properties

Reinforcement	IM7 UniTape	3K PW HTS40/HTS45	6K 5HS HTS40/HTS45	12K 2X2 TW HTS40/HTS45
Fiber Area Weight	145 gsm	378gsm	378gsm	378gsm
Cure Cycle	185°C Autoclave	185°C Oven	185°C Oven	185°C Oven
Tensile Strength, 0° (MPa) -54°C Dry 24°C Dry 120°C Dry 120°C Wet ASTM-D-3039	2344.2 2413.1 2454.5	910.1 979.0 -- 930.8	945.9 1015.5 902.5	890.1
Tensile Modulus, 0° (GPa) -54°C Dry 24°C Dry 120°C Dry 120°C Wet ASTM-D-3039	161.3 166.9 169.6	63.4 64.1 -- 63.4	67.6 64.8 64.8	64.8
Compressive Strength (MPa) -54°C Dry 24°C Dry 120°C Dry 120°C Wet SACMA 1R-94	- 1820.2 1310.0 1020.4	854.9 772.2 627.4 372.3	- 820.4 696.4 537.8	- 806.7 641.2 -
Compressive Modulus (GPa) -54°C Dry 24°C Dry 120°C Dry 120°C Wet SACMA 1R-94	-- 145.4 187.5 157.2	61.3 58.6 59.9 59.2	-- 64.8 63.4 65.5	-- 59.9 58.6
In-Plane Shear Strength (MPa) -54°C Dry 24°C Dry 120°C Dry 120°C Wet ASTM-D-3518	-- 91.0 -- --	120.6 93.1 -- 35.2	-- 98.5 88.2 64.1	-- 78.6 86.2
In-Plane Shear Modulus (GPa) -54°C Dry 24°C Dry 120°C Dry 120°C Wet ASTM-D-3518	-- 4.7 -- --	5.6 4.7 -- 1.9	-- 4.8 4.1 4.1	-- 4.6 3.6 2.6
Open-Hole Compr. Strength (MPa) 24°C Dry 120°C Wet ASTM-D-6484	--	315.1 204.7	328.1	297.8
Comp. Strength After Impact (MPa) 24°C Dry		230.3		

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