

F-529 Phenolic Prepregs

Park's F-529 is a non-halogenated phenolic resin designed specifically for use in aircraft and mass-transit interior laminate and sandwich panels. F-529 was formulated for applications requiring non-halogenated FST (flame, smoke, toxicity) performance.

Key Features & Benefits

- Self-Adhesive resin system for sandwich panel applications
- Non-Halogenated and antimony-free resin formulation
- Excellent FST performance
- Low OSU heat-release (< 20/20)
- Good Tack and Drape properties
- White color after cure for superior cosmetics

Product Forms

- Available on a wide variety of reinforcements
- Solution coated fabrics up to 60 inches wide.
- Compatible with Autoclave Vacuum/Oven or Press Cure processes.

Applications / Qualifications

- Aircraft Interiors
- Mass-Transit Interiors
- Meets all requirements of:
 - o FAR 25.853
 - o FAR 25.856
 - o ATS 1000.001
 - o OSU 1990
- Mass-Transit Interiors
- Complies with:
 - o Federal Railroad Administration of the Dept. of Transportation Title 49 CFR 238 Appendix B
 - o UMTA recommended Fire Safety Practices for Transit Bus & Van Materials Selection Docket #90-A
 - o Amtrak Specification #352 Section 3.5
 - o NFPA 130 Section 4.2.4 Interior

Global Availability

For Information about Park's materials:

North America

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Prepreg Physical Properties

	7781 E-Glass	3K PW	120	285
Fiber Areal Weight (gsm)	300	193	107	173
Resin Solids Content (%)	41 – 47	38 – 44	50 – 56	47 – 53
Resin Flow (125°C, 3.4 bar) (%)	25	10 – 30	22 – 32	20 – 30
Volatiles (135°C, 8 min) (%)	<3.5	<3.5	<6.0	<6.0
Gel Time (min)	7	7	--	--

Laminate Mechanical Properties

Reinforcement	7781 E-Glass	7781 E-Glass	3K PW
Cure Cycle	Oven Cure 90min, 125°C	Autoclave 3.4 bar, 90 min.	Press Cure 16 min, 150°C
Tensile Strength, 0° (MPa) 23°C Dry 71°C Dry ASTM-D-638	327 --	413 289	530 --
Tensile Modulus, 0° (GPa) 23°C Dry 71°C Dry ASTM-D-638	23 --	24 22	57 --
Compressive Strength (MPa) 23°C Dry 71°C Dry ASTM-D-695	330 --	427 207	696 --
Compressive Modulus (Msi) 23°C Dry 71°C Dry ASTM-D-695	24 --	24 18	54 --
Interlaminar Shear (MPa) 23°C Dry ASTM-D-2344	--	36	--
Long Beam Flexure (in-lb / in) 23°C Dry ASTM-C-393	--	148	--
Flatwise Tensile Strength 23°C Dry MIL-Std 401	340	310	--
Climbing Drum Peel (in-lb / 3 in) 23°C Dry ASTM-D-1781	10	16	8

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 values based on a nature process of refining our testing equipment and techniques.

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Flammability Properties

	7781 E-Glass	3K PW
Vertical Burn, 60 sec Self Extinguish Time (sec) Burn Length (in) Drip <i>FAR 25.853, Part 25 Appendix F, Part I (b) (4)</i>	0 2.5 None	0 1.8 None
Smoke Density <u>Specific Optical Density</u> 90 second Flaming Mode Non-Flaming Mode 4 minutes Flaming Mode Non-Flaming Mode Flaming Dripping <i>ASTM E 662</i>	0Ds 1Ds 1Ds 3Ds None	
Smoke Density <u>Specific Optical Density</u> Flaming Mode Non-Flaming Mode <i>FAR 25.853, Part 25 Appendix F, Part V</i>	6 Dm 2 Dm	1 Dm --
Gas Toxicity <u>Flaming Mode</u> Carbon Monoxide Hydrogen Fluoride Hydrogen Chloride Hydrogen Cyanide Sulphur Dioxide Nitrous Gases <u>Non-Flaming Mode</u> Carbon Monoxide Hydrogen Fluoride Hydrogen Chloride Hydrogen Cyanide Sulphur Dioxide Nitrous Gases <i>Airbus AITM 3.0005 / ASTM-E-662</i>	100 ppm < 0.5 ppm < 1.0 ppm < 2.0 ppm < 1.0 ppm 4.0 ppm 10.0 ppm < 0.5 ppm < 1.0 ppm < 2.0 ppm < 1.0 ppm < 2.0 ppm	-- -- -- -- -- -- -- -- -- -- --
Radiant Panel Flame Spread Index Flaming dripping <i>ASTM E 162</i>	3.8 none	
Heat Release Total (KW-min/m ²) Peak (KW/m ²) <i>FAR 25.853 Part 25 Appendix F, Part IV</i>	6.0 17.0	19 32

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Prepreg Storage Life

- Out Life: 30 days @ 24°C
- Shelf Life: 6 months @ -18°C (dry)

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

Autoclave Cure Cycle

- Apply 0.8 bar vacuum (minimum) for 1 hour before beginning heat cycle
- Apply 0.7 bar autoclave pressure
- Raise product temperature from RT to 125°C at 1 – 3°C/min
- Increase autoclave pressure to 3 bar, vent vacuum at 1 – 1.4 bar
- Hold product at 120 – 125°C for 60 - 90 minutes
- Cool to 70°C at no more than 4°C/min prior to releasing autoclave pressure

Oven/Vacuum Cure Cycle

- Apply 0.8 bar vacuum (minimum) for 1 hour before beginning heat cycle
- Raise product temperature from RT to 125°C at 1 – 3°C/min
- Hold product at 120 – 125°C for 60 - 90 minutes
- Cool to 70°C at no more than 4°C/min prior to releasing vacuum

Press Cure Cycle

- Cure 90 – 120 minutes at 125°C, 3 bar
 - Compatible with hot-in / hot-out Press processing
- Note: Shorter cure cycles may be possible with higher temperatures.

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