

V-376 Cyanate Ester Prepregs

Park's V-376 is a Cyanate Ester matrix providing excellent electrical and mechanical properties for harsh aircraft, shipboard, and undersea applications for Radomes, Antenna, and Reflectors. Simple processing and good handling characteristics make V-376 an ideal alternative to BMI and polyimide resin systems.

Key Features & Benefits

- Cyanate Ester resin provides outstanding electrical properties (Dk, Df)
- Excellent Moisture resistance properties
- Simplified handling and processing characteristics
- Minimal degradation of mechanical properties in Hot/Wet environments
- Self-Adhesive to many types of foam and honeycomb core

Product Forms

- Available on a wide variety of reinforcements, including fiberglass and quartz
- Solution coated fabrics up to 60 inches wide
- Compatible with autoclave, vacuum bag/oven or press molding processes

Applications / Qualifications

- Radomes
- Reflectors
- Antenna
- Signature Control

Qualified Specifications

- GC110 LM

Global Availability

For Information about Park's materials:

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Asia Pacific +656.861.7117

Europe +33-562-985290

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Prepreg Physical Properties

| Reinforcement | 7781 E-Glass | 581 Quartz | 4503 Quartz | 4581 Quartz |
|--------------------------|-----------------|---------------|----------------|----------------|
| Fiber Areal Weight (gsm) | 303 | 285 | 112 | 288 |
| Resin Solids (%) | 39 ±3 | 39 ±3 | 38 ±3 | 38 ±3 |
| Volatile Content (% Max) | 2 | 2 | 1.5 | 1.5 |
| Flow – 325°F @ 50psi (%) | 18 ±10 | 18 ±10 | 23±10 | 23±10 |
| Gel time @ 325°F (sec) | 50-250 | 50-250 | 50-250 | 50-250 |

Laminate Physical / Electrical Properties

| Reinforcement | 7781 E-Glass | 581 Quartz | 4503 Quartz | 4581 Quartz |
|---|---|---------------|----------------|----------------|
| Cure per ply thickness (in.) | .009 | .011 | .005 | .010 |
| Dielectric Constant (Dk) @ 9.375 GHz | 4.0 | 3.2 – 3.3 | 3.3 | 3.3 |
| Loss Tangent (Df) @ 9.375 GHz | 0.011 | 0.004 – 0.007 | .007 | .007 |
| Glass Transition (Tg, DMA) | 352°F with post-cure 298°F w/o post-cure | | | |
| Z-Axis CTE | 52 ppm/°C | | | |
| Moisture Absorption 14 day soak at 160°F | 0.67% by weight | | | |

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.

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Laminate Mechanical Properties

| Reinforcement | 7781 E-Glass | 581 Quartz | 4503 Quartz | 4581 Quartz |
|------------------------------------|-----------------|---------------|----------------|----------------|
| Tensile Strength, 0° (Ksi) | | | | |
| 75°F Dry | 56 | 100 | 96 | 94 |
| 180°F Wet | -- | 70 | -- | -- |
| 300°F Wet | -- | -- | 71 | 62 |
| 300°F Dry | 52 | 94 | -- | -- |
| 400°F Dry | -- | 61 | -- | -- |
| ASTM-D-638 | | | | |
| Tensile Modulus (Msi) | | | | |
| 75°F Dry | 3.1 | 3.8 | 3.6 | 3.4 |
| 180°F Wet | -- | 3.2 | -- | -- |
| 300°F Wet | -- | -- | 3.3 | 3.4 |
| 300°F Dry | 3.2 | 4.0 | -- | -- |
| 400°F Dry | -- | 3.6 | -- | -- |
| ASTM-D-638 | | | | |
| Flexural Strength, 0° (Ksi) | | | | |
| 75°F Dry | 90 | 110 | 103 | 114 |
| 180°F Wet | -- | 85 | -- | -- |
| 300°F Dry | 81 | 75 | -- | -- |
| 400°F Dry | -- | 42 | -- | -- |
| ASTM-D-790 | | | | |
| Flexural Modulus (Msi) | | | | |
| 75°F Dry | 3.4 | 3.6 | 3.4 | 3.3 |
| 180°F Wet | -- | 3.6 | -- | -- |
| 300°F Dry | 3.1 | 3.2 | -- | -- |
| 400°F Dry | -- | 2.4 | -- | -- |
| ASTM-D-790 | | | | |
| Compressive Strength (Ksi) | | | | |
| 75°F Dry | 58 | 75 | 69 | 77 |
| 180°F Wet | -- | 65 | -- | -- |
| 300°F Wet | -- | -- | 46 | 54 |
| 300°F Dry | 50 | 60 | 58 | 62 |
| 400°F Dry | -- | 50 | -- | -- |
| ASTM-D-695 | | | | |
| Compressive Modulus (Msi) | | | | |
| 75°F Dry | -- | 3.5 | 3.6 | 3.3 |
| 180°F Wet | -- | 3.3 | -- | -- |
| 300°F Wet | -- | -- | 3.6 | 3.5 |
| 300°F Dry | -- | 3.4 | 3.7 | 3.5 |
| 400°F Dry | -- | 3.4 | -- | -- |
| ASTM-D-695 | | | | |

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Laminate Mechanical Properties (continued)

| Reinforcement | 7781 E-Glass | 581 Quartz | 4503 Quartz | 4581 Quartz |
|--|-----------------|---------------|----------------|----------------|
| Short Beam Shear (Ksi) | | | | |
| 75°F Dry | 16.7 | 8.5 | 9.2 | 11.0 |
| 180°F Wet | -- | 7.5 | -- | -- |
| 300°F Dry | 11.9 | 5.6 | -- | -- |
| 400°F Dry | -- | 2.6 | -- | -- |
| ASTM-D-2344 | | | | |
| In-Plane Shear Strength (Ksi) | | | | |
| 75°F Dry | -- | 17.2 | -- | -- |
| 160°F Dry | -- | 16.0 | -- | -- |
| 160°F Wet | -- | 14.3 | -- | -- |
| ASTM-D-3518 | | | | |
| In-Plane Shear Modulus(Msi) | | | | |
| 75°F Dry | -- | 0.7 | -- | -- |
| 160°F Dry | -- | 0.6 | -- | -- |
| 160°F Wet | -- | 0.6 | -- | -- |
| ASTM-D-3518 | | | | |
| Compression After Impact Strength, 1500 in.lb./in | | | | |
| NASA 1092 | -- | 26 | -- | -- |
| Compression After Impact Modulus , 1500 in.lb./in | | | | |
| NASA 1092 | -- | 2.5 | -- | -- |

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Prepreg Storage Life

- Tack Life: 14 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.

Autoclave Cure Cycle

- Apply 24”Hg vacuum (minimum) for 1 hour before beginning heat cycle
- Apply 50 – 100 psi autoclave pressure and vent vacuum when autoclave pressure reach 15 – 20 psi
- Increase from room temperature to 350°F +/- 10° at a rate of 1 - 6°F/min (maximum)
- Hold cure temperature for 120 - 240 minutes
- Cool to 150°F at 3 - 10°F/min prior to releasing autoclave pressure
- Post cure of 415°F for 2 – 4 hours is recommended

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