

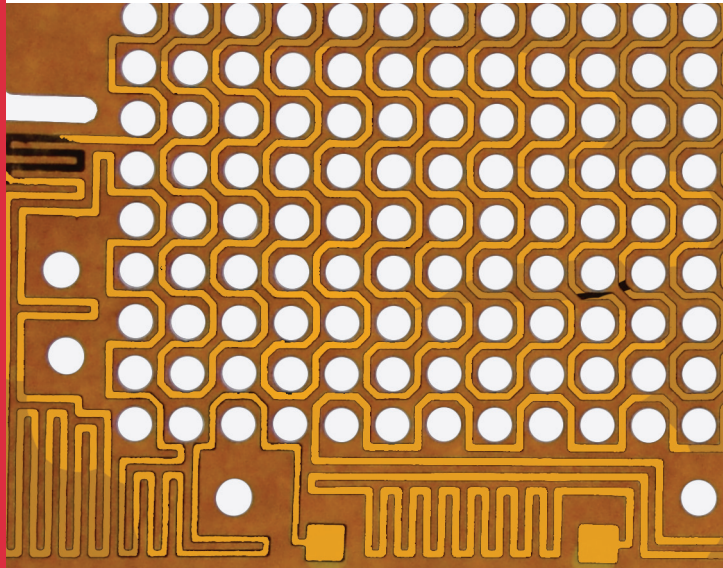
# raPId™ Flex Heater Dielectric



ARLON® raPId™ polyimide substrates are comprised of a revolutionary new construction that incorporates the benefits of polyimide heater dielectrics with the flexibility and usability of a silicone adhesive system. This combination greatly reduces cure temperatures, pressures, and cycle times.

## Applications

- Replacement for acrylic or FEP adhesives in polyimide flexible heaters
- Maintain temperatures in analytical test equipment with a chemical-resistant heater
- Outdoor electronics requiring cold weather operation via ultra-low profile heater constructions
- Low-weight heaters for aerospace applications to protect devices against cold temperatures at high altitudes
- Medical equipment requiring faster response rate heating systems



### Typical Properties

Temperature Range	-50°C to 232°C (-58°F to 450°F)
Dielectric Strength	9.5 kV
Flame Rating	UL HB
UL RTI	150°C (302°F)
Ply Adhesion	1050 N/mm (6.0 lbf/in)

### Performance Advantages

Cure Cycle Times - Under 20 minutes
Press Cure Temperatures as low as 121°C (250°F)
Can be used for both foil-etched and wire-wound flex heater constructions
Formulated to eliminate voids, blisters, and bubbles with low/no pick off
Superior thermoset bonding properties with no circuit swimming and very low outgassing
Available in both generic polyimide and Kapton® brand polyimide

All metric conversions are approximate.  
Additional technical information is available.  
Typical values should not be used for specification limits.



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### Process Recommendations for Foil-Etched Flex Heaters

1. Print I##C28N005 to desired circuit using photolithography techniques and etch with ferric chloride or other suitable solvent.
2. Prime etched circuit with Dow Corning PR-2260, Lord Chemlok 607 or other suitable primer according to manufacturer's recommendations.
3. Remove polyethylene release liner from another piece of ARLON raPIId substrate and laminate rubber to rubber taking care to avoid air entrapment. Use of a squeegee or nip roller will aid air removal.
4. Use platen press or vacuum bag to thermally cure the laminate at 120°C (248°F) and 103 kPa (17.5 psi) for 15 minutes.

### Process Recommendations for Wire-Wound Flex Heaters

1. Wind resistance wire on pin board to form desired circuit.
2. Remove polyethylene release liner from ARLON raPIId substrate and lay over circuit.
3. Using a roller, transfer circuit by rolling Arlon raPIId substrate onto the pin board.
4. Peel ARLON raPIId substrate away from pin board to pick up circuit.
5. Remove polyethylene release liner from another piece of ARLON raPIId substrate and laminate rubber to rubber taking care to avoid air entrapment. Use of a squeegee or nip roller will aid air removal.
6. Use platen press or vacuum bag to thermally cure the laminate at 120°C (248°F) and 103 kPa (17.5 psi) for 15 minutes.

		Cap Construction		
Polyimide		0.05 mm 2.0 mil	0.05 mm 2.0 mil	0.05 mm 2.0 mil
Silicone		---	0.075 mm 3.0 mil	0.127 mm 5.0 mil
Base Construction	0.05 mm 2.0 mil	---	0.175 mm 7.0 mil	0.227 mm 9.0 mil
	0.05 mm 2.0 mil	0.075 mm 3.0 mil	0.3 mm 10.0 mil	0.302 mm 12.0 mil
	0.05 mm 2.0 mil	0.127 mm 5.0 mil	0.302 mm 12.0 mil	0.354 mm 14.0 mil
<b>Finished Heater Thickness</b>				

All metric conversions are approximate.  
Additional technical information is available.  
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