Ajedium™ Films -- Radel® R-5100 NT15

polyphenylsulfone

Radel® polyphenylsulfone is an amorphous thermoplastic material that offers exceptional hydrolytic stability, and toughness superior to other commercially available, high-temperature films.

PPSU films have high deflection temperatures and outstanding resistance to environmental stress cracking.

The polymer is inherently flame retardant. The excellent thermal stability makes films suitable for applications where very low shrink at high temperatures are needed. PPSU films also have good electrical properties.

Radel® film is off-white in color.

General		
Material Status	• Commercial: Active	
Availability	• Asia Pacific • Europe	• Latin America • North America
Features	• Flame Retardant • Good Electrical Properties • Good Thermal Stability	• Good Toughness • High ESCR (Stress Crack Resist.) • Hydrolytically Stable
Uses	• Aerospace Applications • Aircraft Applications • Automotive Applications • Batteries	• Electrical/Electronic Applications • Food Service Applications • Medical/Healthcare Applications
RoHS Compliance	• RoHS Compliant	
Appearance	• Off-White	

Physical	Typical Value	Unit	Test method
Density / Specific Gravity	1.30		ASTM D792
Water Absorption (24 hr)	0.37	%	ASTM D570

Mechanical	Typical Value	Unit	Test method
Tear Resistance	8.1	cN	ASTM D1004

Films	Typical Value	Unit	Test method
Film Thickness - Tested			
--	25	µm	
-- [1]	50	µm	
-- [2]	125	µm	
Secant Modulus			ASTM D882
MD	1590	MPa	
TD	1980	MPa	
Tensile Strength			ASTM D882
MD : Yield	68.0	MPa	
TD : Yield	59.0	MPa	
MD : Break	92.0	MPa	
TD : Break	70.0	MPa	

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Films	Typical Value	Unit	Test method
Tensile Elongation			ASTM D882
MD : Yield	9.2	%	
TD : Yield	6.8	%	
MD : Break	140	%	
TD : Break	100	%	
Dart Drop Impact	750	g	ASTM D1709B
Area Factor	149	ft²/lb/mil	
Tear Propagation Resistance	140	gf	ASTM D1922

Thermal	Typical Value	Unit	Test method
Deflection Temperature Under Load			ASTM D648
1.8 MPa, Unannealed, 3.18 mm	207	°C	
Glass Transition Temperature	220	°C	ASTM E1356
CLTE - Flow (3.18 mm)	5.6E-5	cm/cm/°C	ASTM D696

Electrical	Typical Value	Unit	Test method
Volume Resistivity	9.0E+15	ohms·cm	ASTM D257
Dielectric Strength (0.0250 mm)	190	kV/mm	ASTM D149
Dielectric Constant	3.45		ASTM D150

Flammability	Typical Value	Unit	Test method
Oxygen Index	38	%	ASTM D2863

Additional Information

Standard Thicknesses and Widths

- Widths are available from 22" (559 mm) to 56" (1422 mm).
- Products with widths <22 inches or >56 inches are available upon request.
- Tolerances for widths are +/- 4mm.
- For PPSU film, the standard thicknesses are 25 microns (1 mil) to 1016 microns (40 mil).

Surface Finishes

- Standard surface finish is P/M (polished / matte).
- Custom finishes of P/P (polished / polished) and M/M (matte / matte) are available.

Packaging

- Film is supplied in a roll form of high quality, cardboard core of 3" (76mm) or 6" (152mm).
- PVC cores are available upon request in 3" and 6" sizes.

Labeling

- Products are labeled to comply with national and international standards.
- Labels include product grade, unique batch number, roll length, roll width, product thickness, and net weight.

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Notes

Typical properties: these are not to be construed as specifications.

[1] Impact Properties

[2] Tear Properties

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