



Radel® R-7400

polyphenylsulfone

Radel R-7300 and R-7400 polyphenylsulfone resins were developed specifically for aircraft interior applications, and through the use of a proprietary flame retardant package, offer low heat release, low smoke generation, and low toxic gas emissions. These resins comply with the FAA regulation 14CFR Part 25.853 Appendix F. In addition, they have excellent impact resistance and ESCR when exposed to fluids typically used by the aerospace industry, reducing the need for annealing or protective films.

These resins offer exceptional hydrolytic stability, similar to that of UDEL® polysulfone, with improved toughness, higher heat deflection temperature, and better resistance to environmental stress cracking.

Radel R-7300 and R-7400 resins can be fabricated using conventional injection molding equipment. These materials have excellent flow characteristics, readily filling complex parts with thin walls or long flow lengths.

While the two resins exhibit nearly identical performance characteristics, Radel R-7300 is formulated for applications

requiring light colors and R-7400 is preferred for applications specifying darker colors.

Chemical Resistance:

One of the outstanding characteristics of both Radel R-7300 and R-7400 resins is resistance to many commonly used aviation fluids. Three test methods, unstressed immersion, stressed with a 5-inch radius curve, and stressed with a variable radius curve fixture, were employed to evaluate resistance of Radel resins to Skydrol® LD-4; 1,1,1-trichloroethane; Jet fuel A; methyl ethyl ketone; toluene; isopropanol; and Skydrol 500B.

In all cases, Radel R-7000A resin exceeded industry requirements and was clearly superior to the competitive materials. Radel R-7300 and R-7400 resins, while providing improved processing and physical properties, have the same base resin composition as R-7000A resin and will yield similar chemical resistance results.

Skydrol is a registered trademark of the Monsanto Company.

General

Material Status	• Commercial: Active		
Availability	• Asia Pacific	• Europe	• North America
Features	• Flame Retardant • Good Chemical Resistance • Good Processing Stability	• Good Toughness • High ESCR (Stress Crack Resist.) • High Flow	• High Impact Resistance • Hydrolytically Stable • Low Smoke Emission
Uses	• Aerospace Applications	• Aircraft Applications	• Aircraft Interiors
Agency Ratings	• FAA 14 CFR Part 25.853 App F		
RoHS Compliance	• Contact Manufacturer		
Forms	• Pellets		
Processing Method	• Extrusion • Film Extrusion	• Injection Molding • Profile Extrusion	• Sheet Extrusion

Physical

	Typical Value	Unit	Test Method
Specific Gravity	1.36	g/cm ³	ASTM D792
Melt Mass-Flow Rate (MFR) (380°C/2.16 kg)	16	g/10 min	ASTM D1238
Water Absorption (24 hr)	0.30	%	ASTM D570

Mechanical

	Typical Value	Unit	Test Method
Tensile Modulus	2790	MPa	ASTM D638
Tensile Strength	75.8	MPa	ASTM D638
Tensile Elongation (Break)	40	%	ASTM D638

Mechanical	Typical Value	Unit	Test Method
Flexural Modulus	2760	MPa	ASTM D790
Flexural Strength	110	MPa	ASTM D790
Impact	Typical Value	Unit	Test Method
Notched Izod Impact	80.1	J/m	ASTM D256
Thermal	Typical Value	Unit	Test Method
Deflection Temperature Under Load 1.8 MPa, Unannealed	182	°C	ASTM D648
Flammability	Typical Value	Unit	Test Method
OSU Peak Heat Release Rate ¹	< 55	kW/m ²	FAR 25.853(d)
OSU Total Heat Release - 2 min ¹	< 20	kW·min/m ²	FAR 25.853(d)
Smoke Density			ASTM F814
Dm @ 4 min: Industry Requirement: 50 - 100 Ds	< 5	Ds	
Ds @ 1.5 min	1	Ds	

Additional Information

Materials intended for aircraft interior parts must meet stringent flammability requirements. Radel R-7300 and R-7400 resins meet or exceed all commercial and regulatory requirements for flammability, smoke density, heat release, and toxic gas emissions.

Injection	Typical Value	Unit
Drying Temperature	149	°C
Drying Time	4.0	hr
Rear Temperature	354 to 371	°C
Middle Temperature	360 to 377	°C
Front Temperature	366 to 382	°C
Nozzle Temperature	360 to 377	°C
Processing (Melt) Temp	366 to 388	°C
Mold Temperature	107 to 163	°C
Injection Rate	Fast	
Screw Compression Ratio	2.0:1.0 to 3.0:1.0	

Notes

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

¹ The flammability ratings are not intended to reflect hazards presented by these or any material under actual fire conditions.

For assistance with an emergency involving products of Solvay Advanced Polymers, such as a spill, leak, fire, or explosion, call day or night:

Emergency Health Information

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International +1.770.772.8577

Emergency Spill Information

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For additional product information, technical assistance, and Material Safety Data Sheets (MSDS), call:

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Material Safety Data Sheets (MSDS) for products of Solvay Advanced Polymers are available upon request from your sales representative or by emailing us at advancedpolymers@solvay.com. Always consult the appropriate MSDS before using any of our products.

Property values for individual batches will vary within specification limits. Unless otherwise noted, values shown are typical for uncolored resin; colorants may alter values. For Preliminary Data Sheets, values are typical of limited production and specifications are not yet established.

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