

Radel® R-7700

polyphenylsulfone

Radel® R-7700 polyphenylsulfone sheet was developed specifically for aircraft interior applications. Through the use of a proprietary flame retardant package, this resin offers low heat release, low smoke generation and low toxic gas emissions, thereby complying with the FAA regulation 14CFR Part 25.853 Appendix F. In addition, it has excellent impact resistance and meets typical industry requirements for resistance to aerospace fluids, even under stress.

Radel® R-7700 sheet can be formed into large complex geometries with relative ease on conventional thermoforming equipment. Please reference the Technical Bulletin Thermoforming Radel® R-7700 Sheet for additional information.

- Available in several custom colors

Radel® R-7700 is available in pellets and sheet form.

General

Material Status	• Commercial: Active	
Availability	• Africa & Middle East • Asia Pacific • Europe	• Latin America • North America
Features	• Detergent Resistant • Flame Retardant • Good Processing Stability	• Good Toughness • Low Smoke Emission • Low Toxicity
Uses	• Aerospace Applications • Aircraft Applications	• Aircraft Interiors
Agency Ratings	• AAMA 303 • FAA FAR 25.853a	• OSU 55/55
RoHS Compliance	• Contact Manufacturer	
Appearance	• Colors Available	
Forms	• Pellets	• Sheet
Processing Method	• Extrusion • Profile Extrusion	• Sheet Extrusion • Thermoforming

Physical

	Typical Value	Unit	Test method
Density / Specific Gravity	1.34 to 1.42		ASTM D792
Water Absorption (24 hr)	0.35	%	ASTM D570

Mechanical

	Typical Value	Unit	Test method
Tensile Modulus (3.18 mm)	2280	MPa	ASTM D638
Tensile Strength (3.18 mm)	58.6	MPa	ASTM D638
Tensile Elongation (Break, 3.18 mm)	15	%	ASTM D638
Flexural Modulus (3.18 mm)	2340	MPa	ASTM D790
Flexural Strength (3.18 mm)	100	MPa	ASTM D790

Impact

	Typical Value	Unit	Test method
Notched Izod Impact (3.18 mm)	130	J/m	ASTM D256
Unnotched Izod Impact (3.18 mm)	No Break		ASTM D256
Gardner Impact (3.18 mm)	> 31.1	J	BS 7271

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Thermal	Typical Value	Unit	Test method
Deflection Temperature Under Load 1.8 MPa, Unannealed, 3.18 mm	202	°C	ASTM D648
Flammability	Typical Value	Unit	Test method
Heat Release			Ohio State University
2 minutes : 1.52 to 3.18 mm ¹	< 20	kW·min/m ²	
Peak Rate : 1.52 to 3.18 mm ²	< 55	kW/m ²	
Smoke Density			ASTM F814
Maximum Specific Optical Density @ 4 min ³	3.0	Ds	
Specific Optical Density @ 1.5 min ⁴	1.0	Ds	
Toxic Gas Emissions			
Carbon Monoxide @ 4 min ⁵	40	ppm	
Hydrogen Chloride ⁶	< 1	ppm	
Hydrogen Cyanide @ 4 min ⁷	< 2	ppm	
Hydrogen Fluoride ⁸	< 1	ppm	
Nitrous Gases @ 4 min ⁹	< 1	ppm	
Sulfur Oxides @ 4 min ¹⁰	3	ppm	

Additional Information

The Federal Aviation Administration (FAA) has issued stringent regulations covering materials for use in commercial aircraft interiors. As shown in the Heat Release and Smoke Density data above, Radel R-7700 sheet complies with these regulations.

In addition, several airframe manufacturers have an additional requirement that, when these materials burn, any smoke generated contain no more than defined levels of specific toxic gases. Radel R-7700 polyphenylsulfone sheet typically exhibits levels of these gases that are much lower than the maximum levels allowed, see Toxic Gas Emission data above.

Notes

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

¹ FAA Requirement, 14CFR PART 25.853 Appendix F: 65 KW-min/m²

² FAA Requirement, 14CFR PART 25.853 Appendix F: 65 KW/m²

³ Flaming Mode; FAA/Industry Requirement: 200

⁴ Flaming Mode

⁵ Flaming Mode; BMS Spec Limit = 500 ppm; ATS 1000.001 Spec Limit = 3500 ppm

⁶ Flaming Mode; BMS Spec Limit = 60 ppm; ATS 1000.001 Spec Limit = 500 ppm

⁷ Flaming Mode; BMS Spec Limit = 60 ppm; ATS 1000.001 Spec Limit = 150 ppm

⁸ Flaming Mode; BMS Spec Limit = 60 ppm; ATS 1000.001 Spec Limit = 50 ppm

⁹ Flaming Mode; BMS Spec Limit = 60 ppm; ATS 1000.001 Spec Limit = 100 ppm

¹⁰ Flaming Mode; BMS Spec Limit = 30 ppm; ATS 1000.001 Spec Limit = 100 ppm

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