

R-7159

RADEL R-7159 polyphenylsulfone resin was developed specifically for aircraft interior applications. The product complies with the FAA regulation 14CFR Part 25 Appendix F, offering vertical burn resistance, very low smoke generation and, through the use of proprietary additives, low heat release values in the Ohio State University (OSU) rate of heat release method. It also generates low flaming-mode toxic gas emissions.

This resin offers reliable toughness and good resistance to most fluids found in the aviation industry, as well as exceptional hydrolytic stability and high heat deflection temperature. Parts can be fabricated from RADEL R-7159

resin using conventional injection molding equipment. The material has excellent flow characteristics, readily filling complex parts with walls as thin as 0.060" (1.5 mm) over long flow lengths.

RADEL R-7159 resin is available in light colors. This product exhibits UV resistance similar to RADEL R-7300 resin, a material that has been used in this kind of application for over a decade.

This product was formerly known as PXM-03011.

Typical Properties of RADEL R-7159 Resin

Property	ASTM Test Method	Typical Values ⁽¹⁾⁽²⁾			
		U.S. Customary Units		SI Units	
		Value	Units	Value	Units
Mechanical					
Tensile Strength	D 638	10	kpsi	69	MPa
Tensile Modulus	D 638	350	kpsi	2.41	GPa
Tensile Elongation at break	D 638	30-50	%	30-50	%
Flexural Strength	D 790	14	kpsi	97	MPa
Flexural Modulus	D 790	370	kpsi	2.55	GPa
Izod Impact, Notched	D 256	11	ft-lb/in	585	J/m
Thermal and Fire Test Results⁽³⁾					
Deflection Temperature at 264 psi (1.82 MPa)	D 648	405	°F	207	°C
OSU, 2 minute Total Heat Release	FAR25, AppF	<10	kW-min/m ²	<10	kW-min/m ²
OSU, Peak Rate of Heat Release	FAR25, AppF	<50	kW/m ²	<50	kW/m ²
60-second Vertical Burn flame time	FAR25, AppF	0	seconds	0	seconds
60-second Vertical Burn length	FAR25, AppF	<3	inches	<76	mm
60-second Vertical drip burn time	FAR25, AppF	No Drip	seconds	No Drip	seconds
Smoke Density (D _{max} @ 4 minutes)	FAR25, AppF	<5		<5	
Toxicity - Flaming BSS 7239/ ATS 1000/ ABD 0031					
HCN		<1	ppm	<1	ppm
CO		<10	ppm	<10	ppm
NO+NO ₂		<1	ppm	<1	ppm
SO ₂		<1	ppm	<1	ppm
HF		<1	ppm	<1	ppm
HCl		<1	ppm	<1	ppm
General					
Specific Gravity ⁽⁴⁾	D 792	1.33		1.33	
Melt Flow at 716°F (380°C) 2.16 kg	D 1238	19	g/10 min	19	g/10 min.

⁽¹⁾ Preliminary data is based on limited production experience.

⁽²⁾ Actual properties of individual batches will vary within specification limits.

⁽³⁾ Flammability test results are not intended to reflect hazards presented by these or any other material under actual fire conditions.

⁽⁴⁾ Specific gravity varies with resin color.

Drying

RADEL R-7159 resin must be thoroughly dried prior to melt processing. Incomplete drying will result in defects in molded parts ranging from surface streaks to severe bubbling. Pellets can be dried using shallow trays placed in a circulating air oven or in a desiccating hopper dryer. Recommended minimum drying conditions are 4 hours at 300°F (149°C). Drying at 330–350°F (165–177°C) is preferable.

Injection Molding

RADEL R-7159 resin can be readily injection molded in most screw injection machines. A general purpose screw with a compression ratio between 2 to 1 and 3 to 1 is recommended, as is minimum back pressure. Injection speeds should be as fast as possible, consistent with part appearance requirements. Mold temperatures in the range of 225–325°F (107–163°C) are suggested. Melt temperature should generally range from 690–730°F (336–388°C). Recommended barrel temperature settings are shown in the following table:

Zone heater settings

Recommended Barrel Temperatures

Zone	°F	°C
Rear (Feed)	670 – 700	354 – 371
Middle	680 – 710	360 – 377
Front	690 – 720	366 – 382
Nozzle	680 – 710	360 – 377

Caution: Exceeding 780°F (415°C) during processing may cause degradation.

Standard Packaging and Labeling

RADEL R-7159 resin is packaged in multiwall paper bags containing 25 kg (55.115 pounds) of material. Special packaging can be supplied upon request.

Individual packages will be plainly marked with the product number, the color, the lot number, and the net weight.

Precautionary Labeling

On the basis of the toxicological, physical, and chemical properties of RADEL R-7159 resin, labeling used on containers is as follows:

Caution! Handling and/or processing of this material may generate a dust which can cause mechanical irritation of the eyes, skin, nose and throat.

It is important that processing equipment be free of materials that decompose at temperatures below 700°F (370°C).

Cross-contamination with such materials may result in a violent release of fumes during processing.

Product Safety and Emergency Service

For product safety information or a Material Safety Data Sheet on a product of Solvay Advanced Polymers

1 (800) 621-4557

1 (770) 772-8880 outside of U.S.

For information or help in an emergency such as a spill, leak, fire or explosion, call day or night:

Emergency Health Information

1 (800) 621-4590

1 (770) 772-5177 outside of U.S.

Emergency Spill Information

CHEMTREC 1 (800) 424-9300

**1 (703) 527-3887 outside of U.S.
collect calls accepted**

For Additional Information

Technical Service

1 (800) 621-4557

Customer Service

1 (800) 848-9744

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