

Royalite R57

Acrylonitrile Butadiene Styrene + PVC

Spartech Plastics

Message:

ROYALITE® R57 thermoplastic sheet is a fire-rated*, rigid ABS/PVC product specifically developed to meet Federal Aviation Administration requirements. It passes FAR 25.853b at 0.047" and above. It combines lightweight with very high impact strength, high tensile strength and stiffness, and excellent formability and ductility.

APPLICATIONS:

Lightweight, toughness and beauty, plus the ability to achieve almost any shape in a wide range of thicknesses are some of the reasons why fire-rated* ROYALITE® R57 sheet is found in many small aircraft applications. It is used for tray tables and armrests in smaller commuter and private airplanes; additionally, it is used for interior ceiling and side panels in many helicopters.

PROCESSING:

ROYALITE® R57 rigid, fire-rated* thermoplastic sheet can be processed on virtually all thermoforming equipment from high-volume, multi-station rotary machines to hand-operated presses. It is readily hand-formed for prototyping and is suitable for use with aluminum and epoxy molds and fine-grain wood molds such as mahogany. Care must be taken in forming so as not to overheat the sheet since ROYALITE® R57 is an ABS/PVC alloy. Stock temperatures of approximately 325°F-400°F are recommended for proper forming. As with any thermoplastic material, care should be taken to account for the coefficient of thermal expansion when considering design parameters. Please contact Royalite for data relating to a specific application or equipment.

COLORS & TEXTURES:

ROYALITE® R57 is offered in a tremendous range of colors with a multitude of textures ranging from smooth to deep-textured. This Royalite product is normally capped with calendered film, which provides exceptional color and gloss control, plus outstanding grain retention after forming.

FINISHING:

With conventional plastic fabricating tools, it is possible to machine, saw, drill, rout and grind this rigid Royalite sheet. It can be punched and die-cut, and paints can be applied by spray, silk screen or roller coating. For optimum performance, paints formulated for plastics must be used. As long as proper procedures are followed, this material can be joined to other materials, or itself, by adhesive bonding, ultrasonic welding and by mechanical fasteners such as screws and rivets. Please contact Royalite for specific recommendations.

AVAILABILITY:

ROYALITE® R57 is available from our warehouse with standard dimensions of 54" x 94" in a variety of colors in a haircell or level haircell finish in gauges ranging from 0.047" to 0.187". Specific blank sizes can be cut to order for an extra charge. For a specific listing of our warehouse offerings, please contact us or our nearest distributor. Warehouse material can normally ship within 72 hours of receipt of the order.

Other standard and custom colors, grain textures, gauges and blank sizes are available subject to normal production scheduling. Maximum width available is 54". Gauges range from 0.047" to 0.312". Widths and gauges outside the standard are available with some restrictions.

General Information	
Features	Ultrasonic weldable
	Rigid, good
	High tensile strength
	Impact resistance, high
	Sprayable
	Machinable
	Adhesiveness
	Good adhesion
	Low temperature resistance
	Heat resistance, medium
	Good toughness
	ductility
	Excellent appearance
	Flame retardancy

Uses	Airplane trim Aircraft applications		
Agency Ratings	FAA FAR 25.853 b 2		
Appearance	Available colors		
Forms	Sheet		
Processing Method	Vacuum forming		
Physical	Nominal Value	Unit	Test Method
Specific Gravity ¹	1.18 - 1.26	g/cm ³	ASTM D792
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (R-Scale)	93		ASTM D785
Mechanical	Nominal Value	Unit	Test Method
Tensile Strength - Flow (Yield)	33.1	MPa	ASTM D638
Flexural Modulus	1930	MPa	ASTM D790
Flexural Strength	53.1	MPa	ASTM D790
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact			ASTM D256
-29°C	85	J/m	ASTM D256
22°C	430	J/m	ASTM D256
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load (1.8 MPa, Unannealed)	79.4	°C	ASTM D648
Flammability	Nominal Value		Test Method
Flame Rating (2.16 mm)	V-0		UL 94
FAA Flammability ²	Passes		FAR 28.853(b)
Flammability	Passes		FMVSS 302
Thermoforming Molding Temperature - Machine	163 - 204	°C	
NOTE			
1.	Color dependent		
2.	12 sec vertical burn, FAR Part 25, Appendix F, Part I, Section (a)(1)(ii)		

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Recommended distributors for this material

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