

# Royalite R60-LS

Acrylic (PMMA) + PVC

Spartech Plastics

## Message:

ROYALITE® R60-LS (R61) thermoplastic sheet is formulated to meet the smoke and fire specifications recommended by the Federal Transit Administration (formerly UMTA.) It consistently meets FTA guidelines for flammability\* and smoke emission\* as measured by ASTM E-162 and ASTM E-662 respectively, at thicknesses of 0.090" and greater. This fact should be carefully considered when designing parts, as end use compliance may be based on the thickness of the part when it is installed.

APPLICATIONS:

The combination of properties provided by ROYALITE® R60-LS (R61) sheet makes it the product of choice for a wide range of applications. It is ideally suited for applications in mass transportation i.e. seat backs, overhead storage bins, trays, side panels, window surrounds, etc. Potential applications include office equipment, interior building facades and industrial equipment where reduced smoke generation is desirable.

PROCESSING:

ROYALITE® R60-LS (R61) thermoplastic sheet can be processed on most standard thermoforming equipment using conventional forming methods. For some complex shapes and deep draw parts, it may be necessary to use predraw boxes and/or plug assists. It is suitable for use with aluminum and epoxy molds and fine-grain wood molds such as mahogany. Temperature-controlled molds are recommended with the temperature maintained between 140°F-155°F. Care must be taken in forming so as not to overheat the sheet since ROYALITE® R60-LS (R61) is a PVC/acrylic alloy. Stock temperatures of approximately 330°F-380°F (infrared measured) 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® R60-LS (R61) is offered in a tremendous range of colors with a multitude of textures ranging from smooth to deep-textured. This Royalite product is 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® R60-LS (R61) is available in various custom colors, grain textures, gauges and blank sizes subject to normal production scheduling. Maximum width available is 60". The available gauge range is 0.090"-0.250". Widths and gauges outside the standard are available with some restrictions.

CLEANABILITY:

As with all plastics, extreme care should be taken when selecting a cleaning agent. Mild soap and water are recommended. Any other solution should be used with extreme caution as it may cause discoloration or degrade the material. Contact Royalite for suggested guidelines.

General Information	
Features	Ultrasonic weldable
	Low smoke
	Rigidity, high
	Rigidity, high
	High tensile strength
	stain resistance
	Impact resistance, high
	Sprayable
	Machinable
	Adhesiveness
	Good wear resistance
	Good adhesion
	Low temperature resistance
	Heat resistance, medium

High hardness  
Flame retardancy

Uses	Industrial application Architectural application field Doors and Windows Application in Automobile Field Car interior parts Car interior equipment Business equipment Bracket tray Seat		
Agency Ratings	ASTM E 162 2 ASTM E 662 2		
Appearance	Available colors		
Forms	Sheet		
Processing Method	Thermoforming		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.35 - 1.40	g/cm <sup>3</sup>	ASTM D792
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (R-Scale)	103		ASTM D785
Mechanical	Nominal Value	Unit	Test Method
Tensile Strength - Flow (Yield)	40.7	MPa	ASTM D638
Flexural Modulus	2280	MPa	ASTM D790
Flexural Strength	66.9	MPa	ASTM D790
Taber Abrasion Resistance (1000 Cycles, 1000 g, CS-10 Wheel)	50.0	mg	
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact (22°C)	160	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 (0.787 mm)	V-0		UL 94
Radiant Panel Flame Spread Index (228.6 μm)	10.0		
Flammability	Passes		FMVSS 302
Smoke Density			ASTM E162
1.52 mm <sup>1</sup>			ASTM E162
1.52 mm <sup>2</sup>			ASTM E162
Thermoforming Molding Temperature	166 - 193	°C	

## NOTE

- |    |   |
|----|---|
| 1. | Ds @ 4 min, using 0.090" sheet in<br>NBS smoke chamber  |
| 2. | Ds @ 90 sec, using 0.090" sheet in<br>NBS smoke chamber |

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## Recommended distributors for this material

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