

Royalite R12

Acrylonitrile Butadiene Styrene

Spartech Plastics

Message:

ROYALITE® R12 is a rigid ABS thermoplastic sheet with exceptionally good high temperature performance. Although most ABS has a deflection temperature of 185°F to 210°F, ROYALITE® R12 is rated at 220°F. It has high tensile strength combined with high impact strength and stiffness, excellent formability, good ductility and low temperature properties.

APPLICATIONS:

The ability of ROYALITE® R12 to retain its strength at high temperatures and its outstanding formability have made it a favorite with many automotive manufacturers. Applications range from heater/air conditioner housings, helicopter and aircraft interior parts to truck instrument panels and embossed passenger car insignias. Its high heat resistance allows it to be used in applications requiring sterilization by boiling water, such as tote boxes and food trays.

PROCESSING:

ROYALITE® R12 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. It is also 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. Stock temperatures of approximately 340°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® R12 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 gives 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® R12 is available in a wide variety of economy, standard and custom colors, grain textures, gauges and blank sizes subject to normal production scheduling. Standard widths range from 12" to 54". Standard gauges range from .060" to 0.375". Maximum capped width available is 54". Maximum uncapped width is 88". Widths and gauges outside the standard are available with some restrictions.

General Information	
Features	Ultrasonic weldable
	Rigidity, high
	Rigidity, high
	High tensile strength
	Impact resistance, high
	Sprayable
	Machinable
	Adhesiveness
	Good adhesion
	Low temperature resistance
	Heat resistance, high
	Embossing
	ductility
	Disinfect with steam
Uses	Airplane trim

Tools/Parts Box
Application in Automobile Field
Car dashboard
Shell
Bracket tray

Appearance	Available colors		
Forms	Sheet		
Processing Method	Thermoforming		
Physical	Nominal Value	Unit	Test Method
Specific Gravity ¹	1.02 - 1.08	g/cm ³	ASTM D792
Molding Shrinkage - Flow	0.50 - 0.70	%	
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (R-Scale)	96		ASTM D785
Mechanical	Nominal Value	Unit	Test Method
Tensile Strength - Flow (Yield)	37.2	MPa	ASTM D638
Flexural Modulus	1930	MPa	ASTM D790
Flexural Strength	61.4	MPa	ASTM D790
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact			ASTM D256
-29°C	96	J/m	ASTM D256
22°C	240	J/m	ASTM D256
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load (1.8 MPa, Unannealed)	104	°C	ASTM D648
CLTE - Flow	7.6E-5 - 1.0E-4	cm/cm/°C	ASTM D696
Thermal Conductivity	0.25 - 0.30	W/m/K	ASTM C177
Flammability	Nominal Value		Test Method
Flammability	Passes		FMVSS 302
Thermoforming Molding Temperature - Machine	171 - 204	°C	
NOTE			
1.	Color dependent		

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Recommended distributors for this material

Susheng Import & Export Trading Co.,Ltd.

Tel: +86 21 5895 8519

Phone: +86 13424755533

Email: sales@su-jiao.com

No. 215, Lianhe North Road, Fengxian District, Shanghai, China



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