

Royalite[®] R52



Royalite[®] R52 thermoplastic sheet provides a fire-rated*, rigid acrylic/PVC product that combines very high impact strength, tensile strength, stiffness and hardness with excellent formability. It is recognized under the component program of Underwriters Laboratories, Inc. with a classification of UL94V-0 at 0.027" gauge and UL94-5VA at 0.051" gauge. Royalite[®] R52 sheet has excellent chemical and stain resistance. Royalite[®] R52 sheet is very economical and is available in a wide range of standard and custom colors, thicknesses and blank sizes.

FEATURES AND BENEFITS

- UL Listed Flame Rated
- Outstanding Chemical Resistance
- Very High Impact Strength
- High Flexural Modulus
- Controlled Color Match Surface
- Passes Federal Motor Vehicle Safety Standard 302

TARGET MARKETS & APPLICATIONS

The combination of properties provided by Royalite[®] R52 thermoplastic sheet makes it the preferred choice for a wide range of applications. Its outstanding chemical resistance and deep draw formability make it suitable for many industrial applications such as trays, tote boxes, ducts, flumes, tanks and sinks. High rigidity and toughness, together with an excellent fire-rating* at thin gauges, make Royalite[®] R52 sheet ideal for electronic components and enclosure applications.

COLORS & TEXTURES

Royalite[®] R52 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.

Available Textures - Smooth, Matte, Level Haircell, Suede, Coarse Suede, Falmouth and Saddle #2

AVAILABILITY

Royalite[®] R52 fire-rated* rigid acrylic/PVC sheet is available in a wide variety of standard and custom colors, grain textures, gauge and blank sizes subject to normal production scheduling. Available width range is from 12" to 54". Widths and gauges outside the standard are available with some restrictions.

Sheets Size – maximum width 54"

Gauges – 0.028 – 0.312

Minimum Order – 500 lbs.

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.

* This term and any corresponding data refer to typical performance in the specific tests indicated and should not be construed to imply this material's behavior under actual fire conditions.

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PROCESSING

Royalite[®] R52 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. This material is also excellent for pressure forming applications. Care must be taken in forming so as not to overheat the sheet since Royalite[®] R52 is an acrylic/PVC alloy. Stock temperatures of approximately 330°F-380°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.

TYPICAL PROPERTIES

PROPERTY	TEST METHOD	UNITS	DATA
Specific Gravity	D-792		1.35†
Tensile Strength machine direction	D-638	(psi)	5,800
Flexural Strength	D-790	(psi)	9,500
Flexural Modulus	D-790	(10 ⁵ psi)	3.2
Impact Strength Notched Izod @ 72°F	D-256	(ft-lb/in notch)	12.0
Hardness	D-785	Rockwell Scale R	100
Heat Deflection Temperature (annealed) @ 264 psi	D-648	(°F)	150
Thermal Conductivity	C-177	(BTU/in/hr/ft ² /°F)	1.01
Coefficient of Thermal Expansion	D-696	(in/in/°F x 10 ⁻⁵)	4.5
Thermoforming Temperature Range	Machine	Low (°F) High (°F)	330 380
Mold Shrinkage		(in/in)	0.004-0.006

FLAMMABILITY RATING*:

Motor Vehicle Standard	FMVSS 302	Passes
Underwriter Labs	UL 94 V-0	Listed ⁽¹⁾
Underwriter Labs	UL 94 5V A	Listed ⁽²⁾
Underwriter Labs	UL 94 5V B	Listed ⁽³⁾
Flame Spread Index	E-162	<6

† Color Dependent

⁽¹⁾ At 0.027"

⁽²⁾ At 0.051"

⁽³⁾ At 0.031"

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NOTE: The data listed herein reflect typical sheet properties. They are the latest available at the time of publication and are reliable to the best knowledge of Royalite. The properties are listed solely to give general guidance and are not to be construed as a warranty or representation for which Royalite assumes responsibility. We cannot anticipate all conditions under which this information and our products, or the products of other manufacturers in combination with our products, may be used. We accept no responsibility for results obtained by the application of this information or the safety and suitability of our products, either alone or in combination with other products. Users are advised to make their own test to determine the safety and suitability of each such product or product combination for their own purposes. We sell the products without warranty. Buyers and users assume all responsibility and liability for loss or damage arising from the handling and use of our products, whether used alone or in combination with other products.

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