

Royalite[®] R86



Royalite[®] R86 thermoplastic sheet is a weatherable PVC/acrylic alloy that provides excellent impact, color and gloss retention under outdoor exposure conditions. Its weather resistance is superior to other materials in its class and is especially cost competitive because it is formulated to have a lower specific gravity. This reduces the weight per part, thus reducing the cost associated. The high impact and tensile strength, high stiffness, good formability and excellent weatherability allow for further cost reductions by supporting thinner-walled parts. Royalite[®] R86 is also superior to Korad[®] capped and painted ABS in impact retention and is cost competitive with these materials, providing the extra protection of flame retardancy. Royalite[®] R86 is offered as a capped product, providing “through-and-through” weatherability with excellent surface quality, gloss and color control or as a monolithic sheet for increased initial gloss. This allows much greater flexibility in matching custom colors in smaller runs than most of the competitive materials.

FEATURES AND BENEFITS

- Flame Retardant*
- Very High Impact Strength
- Passes Federal Motor Vehicle Safety Standard

TARGET MARKETS & APPLICATIONS

The combination of toughness, weatherability and fire retardancy* makes Royalite[®] R86 the perfect choice for a wide range of applications and market segments.

Outdoor – equipment housings, marine applications, RV, automotive, agricultural equipment and recreational applications, safety equipment, building products and signage.

COLORS & TEXTURES

Royalite[®] R86 sheet is offered in a tremendous range of colors with a multitude of textures ranging from smooth to deep-textured to meet specific aesthetic requirements. This Royalite product is normally capped with calendared film that 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, sanded and polished easily. 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[®] R86 is available in various custom colors, grain textures, gauge and blank sizes subject to normal product scheduling.

Sheets Size – maximum width 76”, 54” capped
Gauges – 0.031 – 0.312

CHEMICAL & STAIN RESISTANCE, CLEANABILITY:

Royalite[®] R86 is resistant to a wide range of concentrated chemicals, including aqueous acids and bases, alcohols, lubricating oils, greases and motor fuels. Royalite[®] R86 also exhibits very good stain resistance to common staining agents. Therefore, it is easily and safely cleaned with mild detergents or multi-purpose cleansers such as Fantastic[®] or Formula 409[®]. As with all plastics, extreme care should be taken when selecting a cleaning agent; some solutions may leave a residue, or discolor the material. All outdoor plastic materials are subject to irreversible depositions of atmospheric elements and can be expected to show changes in color due to dirt and other deposits over time. Regular cleaning with approved agents will significantly reduce this process. Contact Royalite for suggested guidelines.

* 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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FORMING A SUSTAINABLE FUTURE

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Royalite[®] R86



PROCESSING

This rigid, weatherable 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. Because Royalite[®] R86 is a PVC/acrylic alloy, care must be taken in forming so as not to overheat the sheet. Stock temperatures of approximately 320-360°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 your specific application and equipment.

TYPICAL PROPERTIES

PROPERTY	TEST METHODS	UNITS	VALUES**
Specific Gravity	D-792		1.33-1.38 †
Tensile Strength, machine direction	D-638	(psi)	5,700
Flexural Strength	D-790	(psi)	9,000
Flexural Modulus	D-790	(10 ⁵ psi)	3.2
Impact Strength Notched Izod @ 72°F	D-256	(ft. lb/in notch)	15.0
Impact Strength Gardner Drop Wt. @ 72°F	D-5420	(in/lb)	320
Hardness	D-785	Rockwell Scale R	97
Head Deflection Temperature (annealed) 264 psi	D-648	(°F)	155
Thermoforming Temperature Range	Machine	Low (°F)	320
		High (°F)	360
Mold Shrinkage		(in/in)	0.005-0.007

† Color dependent

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** All values based on 0.125" thickness unless otherwise noted

FLAMMABILITY RATING*

PROPERTY	TEST METHOD	UNITS	DATA
Motor Vehicle Standard		Passes	FMVSS 302
Underwriters Labs		Passes ¹	UL94V-0
Underwriters Labs		Passes ²	UL 94-5VA

¹ Independent lab, all colors at 0.028" and above.

² Independent lab, all colors at 0.085" and above.

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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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