



## Royalite® R104 Soft-Feel Laminate Material

### VALUE PROPOSITION

Royalite® R104 laminate provides a “soft feel” aesthetically appealing material that meets most of the current automotive specifications for rigid thermoplastic sheet. R104 consists of a soft-to-the-touch layer supported by a rigid ABS backing, giving excellent physical characteristics such as impact strength and ductility. It is very easy to process using one-step thermoforming techniques that result in cost-effective manufacturing. Royalite® R104 is available in a number of standard colors, and custom colors can be matched subject to minimum order quantities.

### FEATURES AND BENEFITS

- Excellent physical characteristics
- High rigidity
- Very high impact strength

### TARGET MARKETS AND APPLICATIONS

Royalite® R104 laminate is suited for automotive consoles, recreational vehicle dash panels, truck and RV headliners, boating applications and door panels on heavy-duty vehicles such as fire trucks.

### FINISHING

With conventional plastic fabricating tools, it is possible to machine, saw, drill, rout and grind this rigid Royalite® laminate. It can be punched or die-cut if it is cut from the “soft-feel” side. Painting should not be necessary because of the designed-in, aesthetically appealing look. As long as proper procedures are followed, the back side of this product can be joined to other materials, or itself, by adhesive bonding, heat or ultrasonic welding and by mechanical fasteners such as screws and rivets. Please contact Royalite for specific recommendations.

### COLORS AND TEXTURES

Royalite® R104 sheet is offered in a tremendous range of colors with a multitude of textures.

### AVAILABILITY

Royalite® R104 is available in a wide variety of standard and custom colors, gauge and blank sizes subject to normal production scheduling.

Sheets Size – maximum width 54"

Gauges – 0.080" – 0.250"

**PROCESSING**

Royalite® R104 can be processed on high volume rotary or single-station equipment. It is necessary to have forming equipment with adjustable two-sided heating, and depending on the part configuration, it is normally desirable to form from an upper platen. Most types of molds from temperature-controlled aluminum to wood molds are suitable. Stock temperatures of 280° F-340° F back side 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.

**SUMMARY OF PROPERTIES**

**Surface:** Royalite® R104 is backed with a rigid ABS substrate that has very high impact strength, good tensile strength, excellent ductility and good formability.

TYPICAL PROPERTIES – ABS SUBSTRATE		
PROPERTY	TEST METHOD	VALUE*
Specific Gravity (color dependent)	ASTM D792	1.06
Tensile Strength, machine direction	ASTM D638	4,600 psi
Flexural Strength	ASTM D790	8,500 psi
Flexural Modulus	ASTM D790	274,000 psi
Hardness - Shore D	ASTM D2240	75
Heat Deflection Temperature (@264 psi - annealed)	ASTM D648	185 °F
Coefficient of Linear Thermal Expansion	ASTM D696	5.0x10 <sup>-5</sup> in/in/°F
Izod Impact (Notched) 72 °F	ASTM D256	4.5 ft - lbs/in
Izod Impact (Notched) -20 °F	ASTM D256	1.5 ft - lbs/in
Flammability	FMVSS 302	Passes

TYPICAL PROPERTIES – LAMINATE CAP		
PROPERTY	TEST METHOD	VALUE*
Weight		41-46 oz/yd <sup>2</sup>
Gauge		0.077"- 0.093"
Elongation	ASTM D638	190%
Maximum Stretch Ratio		2.5:1

\* All values based on 0.125" unless otherwise stated