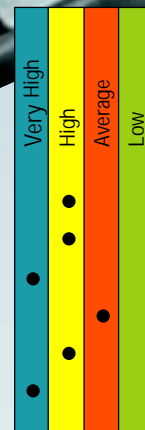


ROYALITE®

R12

RIGID ABS
SHEET



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.

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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.

SUMMARY OF PROPERTIES:

ROYALITE® R12 is a heat-resistant, rigid ABS thermoplastic sheet. It has high tensile strength, high impact strength and stiffness, good ductility, excellent formability and good low temperature performance.

PHYSICAL PROPERTIES (units)	AVERAGE VALUES	TEST METHODS
Specific Gravity	1.02-1.08 *	ASTM D-792
Tensile Strength, machine direction (psi)	5400	ASTM D-638
Impact Strength @ 72°F (ft-lb/in notch)	4.5	ASTM D-256
Notched Izod @ -20°F (ft-lb/in notch)	1.8	
Flexural Strength (psi)	8900	ASTM D-790
Flexural Modulus (10 ⁵ psi)	2.8	ASTM D-790
Hardness Rockwell Scale R	96	ASTM D-785
Heat Deflection @ 264 psi Temperature (annealed) (°F)	220	ASTM D-648
Thermal Conductivity (BTU/in-hr/ft ² /°F)	1.7-2.1	ASTM C-177
Coefficient of Thermal Expansion (in/in/°F/x10 ⁻⁵)	4.2-5.6	ASTM D-696
Thermoforming Temperature Range Low (°F) High (°F)	340 400	Machine
Mold Shrinkage (in/in)	0.005-0.007	
Flammability Rating**: Motor Vehicle Standard	Passes	FMVSS 302

* Color dependent

** 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 situations.

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.

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