

Royalite[®] 632

ROYALITE[®] R632 thermoplastic sheet from Royalite is a unique ABS/PVC material that is both electrically conductive and UL[®] listed. It meets minimum static decay requirements outlined in MIL-B-81705C and NFPA Code 99 specifications. R632 sheet is recognized under the component program of Underwriters Laboratories, Inc. with a classification of 94V-1 at 0.058", 94V-0 at 0.090" and 94-5VA at 0.090". Containers made from Royalite R632 sheet provide permanent protection against electrostatic discharge. R632 sheet provides the dimensional stability typical of ABS plastics, combining high impact strength, stiffness and abrasion resistance with good thermoformability.

FEATURES AND BENEFITS

- UL Listed Flame Rated
- High Impact strength
- Good Thermoformability

TARGET MARKETS & APPLICATIONS

ROYALITE[®] R632 thermoplastic sheet is ideally suited for applications where dissipation of electrostatic charge is critical. R632 sheet provides excellent electrostatic discharge protection (ESD) to sensitive devices during manufacture, assembly and storage. Because R632 sheet is fire-rated* and UL listed, it may be used to protect internal components from ESD damage in electronic devices. Other uses are IC chip carriers, trays, tray dividers, tote boxes, containers, storage bins and conductive table and floor mats. R632 sheet also provides ESD protection in containers to handle explosive devices and equipment used in oxygen-enriched and other volatile environments.

COLORS & TEXTURES

ROYALITE[®] R632 is offered in black only with a multitude of textures ranging from smooth to deep-textured.

FINISHING

With conventional plastic fabricating tools, it is possible to machine, saw, drill, rout and grind this rigid Royalite sheet. 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 R632 is available only in black in a wide variety of grain textures, gauges and blank sizes subject to normal production scheduling.
Sheet Sizes – maximum width 54"
Gauges – 0.030 – 0.250

* 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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Royalite[®] R632

PROCESSING

ROYALITE[®] R632 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. Temperature controlled aluminum molds are highly recommended, although epoxy and fine-grain wood molds, such as mahogany, may be used for prototyping. Stock temperatures of approximately 340°-380°F are necessary for proper forming.

Caution: Stress-free forming is required to maintain conductive properties. 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 and equipment.

TYPICAL PROPERTIES

PROPERTY	TEST METHOD	UNITS	DATA
Specific Gravity	ASTM D-792		1.28
Tensile Strength machine direction	ASTM D-638	(psi)	4,500
Flexural Strength	ASTM D-790	(psi)	7,000
Flexural Modulus	ASTM D-790	(kpsi)	2.9
Hardness	ASTM D-785	Rockwell Scale R	85
Impact Strength, Gardner Drop Dart	ASTM D-5420	(in-lbs)	145
Heat Deflection Temperature (annealed) @ 264 psi	ASTM D-648	(°F)	155
Surface Resistivity	ASTM D-257	(ohm/sq)	≤ 10 ⁵
Thermoforming Temperature Range	Machine	Low (°F) High (°F)	340 380
Mold Shrinkage		(in/in)	0.005-0.007

FLAMMABILITY RATING*:

Motor Vehicle Standard	FMVSS 302	Passes
Underwriters Lab	UL 94V-1	Listed ⁽²⁾
Underwriters Lab	UL 94V-0	Listed ⁽³⁾
Underwriters Lab	UL 94-5VA	Listed ⁽³⁾

⁽¹⁾ At 0.125" (3.18 mm) thickness

⁽²⁾ At 0.058" (1.47 mm) thickness

⁽³⁾ At 0.090" (2.29 mm) thickness

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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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