



## Polycast™ SAR™ Super Abrasion-Resistant Acrylic

### PRODUCT DESCRIPTION

Polycast™ SAR™ super abrasion-resistant acrylic sheet is produced by applying a very hard, highly cross-linked polysilicate (a silicon polymer or polysiloxane) coating to an acrylic substrate. With 45 times the abrasion resistance of uncoated acrylic, it is an attractive material for applications requiring the safety, optical and aesthetic qualities of acrylic along with a highly abrasion-resistant surface.

### VALUE SOLUTION

**Lighter weight and fabrication flexibility decrease costs, while optical clarity increases appeal**

At half the weight of glass, Polycast SAR makes handling easier and safer, and installation less costly and time consuming. It can be cut and fabricated at the installation site using standard power tools, and is ideal for replacement installations because it can be readily fitted into existing frames.

Once installed, the optical clarity of Polycast SAR clearly outshines other materials. In a 1.250" thickness, this material transmits 93% of white light, compared to 66% with

a polycarbonate sheet or 55% with bullet-resistant glass. The edges are clear, providing a transparent, open look that is more appealing than the appearance of thick glass or tinted edges.

### KEY CHARACTERISTICS

- Impact resistance five times that of glass
- Half the weight of glass
- Resists scratches and abrasions
- Maintains clarity and beauty—endures cleaning without hazing
- Meets UL 752 ratings for bullet resistance\*
- Available in a wide variety of transparent, translucent and opaque colors including black, gray and bronze
- Ultra-violet transmitting and ultra-violet filtering formulations available (Polycast UF96, UF3 and UF4)

\* SAR MP 1.25 sheet meets UL 752 rating for Level I medium power, small arms; SAR HP 1.25 meets UL 752 rating for Level II high power, small arms.

## MARKETS AND APPLICATIONS

Polycast SAR is ideal for a multitude of markets and applications, from solarium or security glazing, to museum and exhibit cases. Some key areas and examples include:

### Architectural Safety Glazing

Schools, hospitals, office buildings, retail locations, indoor arenas and hockey rinks

### Transportation

Bus windows, portholes, automotive sunroofs

### Office Equipment

Computer panels, terminal screen faces, laser scanners

### Retail Displays & Fixtures

Merchandise covers, cases, panels

### Maintenance (OSHA)

Forklift shields, viewing ports, machine guards

## TECHNICAL PROPERTIES

PROPERTY	TEST METHOD	POLYCAST SAR*	UNCOATED ACRYLIC*	PLATE GLASS*
<b>OPTICAL</b>				
Luminous Transmittance, (%)	ASTM D-1003	93	92	89
Haze, (%)	ASTM D-1003	0.5	0.6	0.9
Index of Refraction, N223C	ASTM D-542	1.43 <sup>(1)</sup>	1.49 <sup>(1)</sup>	1.5
<b>ABRASION RESISTANCE (Reported as increase in percent haze)</b>				
<b>Steel Wool Rotary Test</b>	(2)			
12 psi		0.0	25	0
24 psi		0.1	31	0
<b>Simulated Cleaning Test (abrasive slurry wiping)</b>	(3)	0.6	14	0
<b>Taber Abrasion (500g. each wheel, 100 rev.)</b>	ASTM D-1044; ANSI Z26.1	0.4	14	0
<b>Mar Resistance</b>	ASTM D-673	2.3	29	3.3
<b>WEIGHT</b>				
<b>Specific Gravity</b>		1.19	1.19	2.45
<b>IMPACT RESISTANCE (All data refer to 0.250 in. thickness)</b>				
<b>Notched Izod, ft.lb./in.</b>	ASTM D-256	0.3	0.3	0.1
<b>Falling Steel Ball, 0.5 lb.</b>	(4)	18	18	2.5

\*Typical values for clear colorless material.

(1) Because the surface of Polycast SAR has a lower refractive index than the substrate, the amount of back reflectance is reduced and transmittance is increased.

(2) Steel Wool Rotary Test - This severe abrasion uses a 1.25-inch-square pad of commercially available 0000 grade steel wool. The steel wool pad is loaded with appropriate weights to give either 12 or 24 psi pressure and it's revolved five times. Results reported as increase in percent haze.

(3) Simulated Cleaning Test - An abrasive water slurry of a commercially available standard test dust is placed on the sample. It is then stroked 360 times with a felt pad under an approximately 2.0 psi load. Results reported as increase in percent haze.

(4) Impact resistance is a function of thickness. Test methods are available on request.

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