

POLYCAST[®] SAR[™]

SUPER ABRASION RESISTANT ACRYLIC

PRODUCT BULLETIN

Since its revolutionary introduction, PolyOne Polycast SAR[™] has had more than 30 years of successful market applications. This generation of product carries the PolyOne Polycast name of quality, service and performance.

Super Abrasion Resistant Sheet

PolyOne 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. This coating provides Polycast SAR sheet with a surface that has 45 times the abrasion resistance of uncoated acrylic, making it an attractive material for applications requiring the safety, optical and aesthetic qualities of acrylic along with a highly abrasion-resistant surface.

Light weight and fabrication flexibility cut installation costs.

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 power tools. In fact, **Polycast SAR** is ideal for replacement installations; because it is readily fitted into existing frames.



PolyOne Polycast[®]SAR[™] is tough, lightweight, weatherable, cleanable and offers excellent thermal insulation.

- Impact resistance five times that of glass
- Weight is half that of glass

Applications

Architectural

Safety Glazing

- Schools
- Hospitals
- Office Buildings
- Service Stations
- Restaurants
- Doors (storm, revolving entrance)
- Bus Shelters
- Press Box Glazing
- Hockey Spectator Guards
- Skylights (flat)
- Zoo enclosures
- Sound Barriers
- Bandit Barriers
- Drive-Up Bank Windows

Transportation

- **Transit Bus Windows**
- Automotive Sun Roofs
- School Windows
- Marine Portholes, Windshields
- Limousine Windows
- Aircraft Windows

Equipment Faces and Covers for Business Equipment

- Computer Panels
- Tape Drive Windows
- Disc Drive Covers
- Printer Covers
- Terminal Screen Faces
- Jig for Printed Circuit Manufacture
- Laser Scanners

Appliance Windows & Panels, Timer Faces and Covers

- Gas Pump Glazing
- Electronic Game Faces
- Baby Incubators
- Vending Machine Glazing
- Blood Analyzer Panels
- Dashboards Panels Solar Cell Covers
- Solar Cells Covers
- Food Sneeze Guards
- TV Face Screens
- Menu Boards

Standard Sizes & Thicknesses

Sheet Sizes: 48" x 72" to 72" x 120"

Thickness: 0.060" to 2.000"

Special thickness and sizes quoted upon request, including cut-to-size parts.

Colors, Formulations & Finishes

POLYCAST SAR is available in a wide variety of transparent, translucent and opaque colors including industry standards such as black, gray and bronze. Ultra-violet Transmitting, Ultra-violet Filtering formulations (including Polycast UF96, UF3 and UF4) and coated one-side sheets are also available.

UL Rated bullet resistance deters crime. Polycast SAR MP 1.25 Sheet meets the Underwriters' Laboratories 752 rating for Level I medium power, small arms. Polycast SAR HP 1.25 meets the UL 752 rating for Level II high power, small arms. Both products provide a strong psychological deterrent to armed robbery. For additional information on Polycast bullet resistant products, or for higher levels of protection, please call for our PolyOne Polycast Bullet Resistant Brochure.

Optical clarity outshines other materials. Polycast SAR in 1.250" thickness transmits 93% white light, compared to 66% for an all polycarbonate sheet and 55% for bullet-resistant glass. Also, its edges are clear, avoiding the massive appearance of thick glass with its greenish tinted edge. That adds up to the sparkling clear, open look that is more appealing to customers.

Tough coating endures years of cleaning without hazing.

Display Store Fixtures

- Merchandise Covers & Cases
- Directory Panels
- Memo Boards
- Scanner Panels
- Picture Framing

Museum Cases & Exhibits

- Solarium Glazing
- Security Glazing

Maintenance (OSHA)

- Guides
- Forklift Shields
- Conveyor Shields
- Viewing Ports
- Machine Guards
- Equipment Enclosures



PolyOne Polycast® SAR™ resists scratches and abrasions.



PolyOne Polycast® SAR™ maintains clarity and beauty for years.

Property	Test Method	Polycast SAR*	Uncoated Acrylic*	Plate Glass*
OPTICAL				
Luminous Transmittance, (%)	ASTM D1003	93	92	89
Haze, (%)	ASTM D1003	0.5	0.6	0.9
Index of Refraction, N _D 23C	ASTM D542	1.43 ₍₁₎	1.49 ₍₁₎	1.5
ABRASION RESISTANCE (Reported as increase in percent haze)				
Steel Wool Rotary Test	(2)			
12 psi		0.0	25	0
24 psi		0.1	31	0
Simulated Cleaning Test (abrasive slurry wiping)	(3)	0.6	14	0
Taber Abrasion (500g. each wheel, 100 rev.)	ASTM D1044; ANSI Z26.1	0.4	14	0
Mar Resistance	ASTM D673	2.3	29	3.3
WEIGHT				
Specific Gravity		1.19	1.19	2.45
IMPACT RESISTANCE (All data refer to 0.250 in. thickness)				
Notched Izod, ft.lb/in.	ASTM D256	0.3	0.3	0.1
Falling Steel Ball, 0.5 lb.	(4)	18	18	2.5
Breakage drop height, (ft.)				

*Typical values for clear colorless material.

(1) Because the surface of Polycast S-A-R 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.

POLYCAST® SAR™

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For more information on SAR and other products manufactured by PolyOne, contact us by phone, e-mail or visit our website.

