



## Polycast<sup>®</sup> Cell Cast Acrylic Bullet Resistant Sheet

Polycast<sup>®</sup> cell cast acrylic bullet resistant sheet is an effective solution for essential barrier protection in glazing applications. The different available grades are UL designated and are designed to fit a variety of ballistic protection applications.

The characteristics most often considered when choosing a bullet resistant sheet are adequate protection, weight, optical clarity and cost. Polycast bullet resistant sheet offers the right balance of properties to meet these specific protection needs. Lighter weight than glass, and with superior optical clarity, Polycast bullet resistant sheet is a clear choice for ballistic protection.

### KEY CHARACTERISTICS

- **Lighter weight**—weighs 48% less than glass with the same UL rating, and less than polycarbonate sheet offering the same protection
- **Optical clarity**—transmits more light than bullet resistant glass or polycarbonate
- **Design flexibility**—can be cut to any size using standard tools without chipping or cracking, and can be formed into curved shapes and polished to a clear luster; color and tint options also available

- **Long-lasting appeal**—maintains beauty over time; will not turn yellow, haze, degrade or turn brittle when exposed to the elements
- **Abrasion resistance**—available with a super abrasion resistant (SAR) coating that can maintain 45 times the abrasion resistance of uncoated acrylic

### MARKET AND APPLICATIONS

Polycast bullet resistant sheet is effective for use in many environments, including:

- Retail storefronts such as banks, convenience stores, pharmacies or jewelry stores
- School buildings
- Residential or office buildings
- Government buildings and embassies
- Armored vehicles, both military and civilian

# Available Grades

## UI 752 Ballistic Standards



### UL LEVEL 1 - POLYCAST MP 1.25 BR SHEET

Protects against handguns of medium power, such as the 9mm and Super 38 Automatics— any handgun with a muzzle energy of 380 to 460 foot-pounds.

### UL LEVEL 2 - POLYCAST HP 1.25 BR SHEET

Thin, light protection against high-power handguns, such as the .357 Magnum or other guns with a muzzle energy of 548 to 663 foot-pounds.

### UL LEVEL 3 - POLYCAST SP 1.25 BR SHEET

Ballistics protection against all handguns, including super power guns such as the .44 Magnum. Exceeds criteria within UL Level 3 requirements.

### UL LEVEL 6 - POLYCAST SMG 1.25 BR SHEET

Multiple shot protection from a submachine gun, such as a 9mm Uzi, and exceeding criteria within UL Level 6 requirements.

## TECHNICAL PROPERTIES

	MP 1.25 LEVEL 1	HP 1.25 LEVEL 2	SP 1.25 LEVEL 3	SMG 1.25 LEVEL 6
Protection	9 mm	.357 Magnum	.44 Magnum	Submachine Gun / Uzi
Optical Properties	Transmission > 90% Haze < 1%	Transmission > 90% Haze < 1%	Transmission > 85% Haze < 1.5%	Transmission > 85% Haze < 1.5%
UL Designation	752, Level 1	752, Level 3	752, Level 3	752, Level 6
Thickness	1.25"	1.378"	1.25"	1.25"
Weight	7.7 lbs. / sq. ft.	8.5 lbs. / sq. ft.	7.7 lbs. / sq. ft.	7.7 lbs. / sq. ft.
SAR Coating	Optional	Standard	Standard	Standard

## AVAILABLE SIZES

MP 1.25 LEVEL 1			HP 1.25 LEVEL 2			SP 1.25 LEVEL 3			SMG 1.25 LEVEL 6
4' x 6'	5' x 6'	6' x 6'	4' x 6'	5' x 6'	6' x 6'	4' x 6'	5' x 6'	6' x 8'	4' x 6'
4' x 8'	5' x 8'	6' x 8'	4' x 8'	5' x 8'	6' x 8'	4' x 8'	5' x 8'	6' x 10'	4' x 8'
		6' x 10'			6' x 10'				



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## TECHNICAL BULLETIN

### General Characteristics of PolyOne SP1.25™ (UL LEVEL 3)

**Edge polishing:**

Acrylic core can be buffed polished to very high luster. Flame polishing of the acrylic core is possible, but the outer layers will have matte finish. Buff polishing is recommended. The acrylic core will be glossy and clear; the outer layers will look darker. Outer layers will maintain matte finish.

**Cementing:**

Not recommended. Typical of all laminate materials, cementing not recommended.

**Thermoforming:**

Not recommended. Typical of all laminate materials, thermoforming not recommended.

**Building code ratings:**

Meets the test requirements of Building Code class CC1.

**Weatherability:**

10 year without visible changes.

**Warranty:**

Lifetime warranty against any weather related appearance changes.

**Chemical Resistance:**

Superior to uncoated acrylic or polycarbonate.

**Fabrication:**

Use same tooling and procedures as for acrylics.

**Maximum Continuous Service Temperature:**

180 F

**Minimum Continuous Service Temperature:**

-26 F (lowest temperature tested for bullet-resistance)



## **Polycast SAR HP UL 752 Level 2 Bullet Resistant Acrylic vs. Polycarbonate Laminated Products**

- **Polycast SAR HP UL 752 Level 2 Bullet Resistant Acrylic is a Monolithic Sheet (one solid piece - no risk of delaminating)**
- **Polycast SAR HP UL 752 Level 2 Bullet Resistant Acrylic has superior optical properties.**
  - **Less than 1% haze level**
  - **Superior crystal clear edge quality; no interlayer exposure vs. Polycarbonate.**
  - **Light Transmission Comparison**

POLYCAST SAR HP UL 752 Level 2 Bullet Resistant ACRYLIC  
>90%

Polycarbonate Laminate  
72%

- **Polycast SAR HP UL 752 Level 2 Bullet Resistant Acrylic may be used for vertical doors and will not warp like polycarbonate laminates.**
- **Polycast SAR HP UL 752 Level 2 Bullet Resistant Acrylic Backed by a 20 year warranty against deterioration or discoloration under normal use.**



A C R Y L I C S H E E T

T E C H N I C A L B U L L E T I N

POLYCAST has been manufacturing clear acrylic sheet for over 40 years and has now been an industry leading supplier of UL 752 approved bullet resistant acrylic sheet which is utilized in the fabrication of bandit barriers and security windows of all kinds, both interior and exterior applications for over 40 years.

The unique and differentiating features of Polycast acrylic are:

- **Its crystal clear appearance**
- **Superior optics**
- **Greater than 90% light transmission**
- **Less than 1% haze**
- **Monolithic construction [one solid piece-no risk of delamination]**
- **And our patented hard coated SAR (Super Abrasion Resistant) surface.**
- **Polycast Acrylic has 3x the insulation value of similar thickness glass**
- **Available with a UV Blocking & Solar Heat Control feature that can reduce heat by 41% over clear acrylic**

Over the years POLYCAST has been globally recognized in the aerospace industry, for supplying acrylic sheet with the highest quality optics, and a *crystal clear* appearance. These same attributes are extended to the Polycast BR sheet products and are the major reason our acrylic sheet is the material of choice when it comes to the fabrication of security glazing.

POLYCAST crystal clear, superior optics approach for bandit barriers was developed and introduced over 30 years ago following extensive research and interaction with those engaged in providing customer/employee protection and security for financial institutions [bandit barriers, drive-up windows, etc...], gas stations, check cashing, and convenience stores.

Polycast BR sheet produces a *natural appearance* when looking through the protective barrier. Objects, as well as people on the other side look natural, without distortion, providing the customer with a sense of warmth, and interaction, as if no barrier is were present.

Polycast acquired the hard-coat technology in the early 1970's from DuPont, which applies an abrasion coating to acrylic sheet. Known at that time as Lucite S.A.R., this abrasion coated sheet product was being primarily marketed in the transportation sector, providing a way to take weight out of buses windows, thereby enhancing their energy efficiencies. This coating therefore had to withstand the elements of the road; dust, salt, typical road grime and then be able to withstand the soft bristled brushes at the automated bus washers.

In 2003 Polycast moved this abrasion coating operation to its Stamford, CT acrylic sheet facility, creating an efficient, in-line manufacturing process. This process, which produces UL 752 approved Polycast SAR HP Level 2 coated Bullet Resistant sheet, is a process where each sheet is dipped and heat treated to give it its unique properties.

Polycast backs up these products with its warranty of a minimum of 20 years for use under normal conditions, as our products have been engineered to *stand the test of time*.

It is our belief, and we believe the marketplace re-enforces the fact that Polycast is indeed the best Level I and Level II security glazing product in the market for bandit barrier applications. Polycast BR products provide an environment where customers and employees feel safe....not confined.