



ACRYLITE® BR acrylic sheet Bullet Resistant Material



Material Description

ACRYLITE® BR acrylic sheet is a 1.25" thick, transparent cell cast acrylic sheet. The cell cast manufacturing technique produces sheets with unsurpassed optical clarity while maintaining a light transmission of 92%. Every sheet is inspected on line to insure that the material meets CYRO's exacting visual specifications. Thickness tolerances are checked on a sheet-by-sheet basis to insure that the material will provide the required protection. The material is protected with a brown adhesive-backed masking to prevent surface scratches during shipping and manufacturing. Identifying tapes are placed at one-foot intervals, indicating the material to be a UL listed bullet resistant product.

Bullet Resistance

Underwriters Laboratories, **UL 752**, is the specification most commonly used to identify a material's level of bullet resistance. ACRYLITE BR sheet is listed as a **UL 752 Level 1** bullet resistant product for indoor and outdoor applications. In order to obtain a **Level 1** listing, a material must resist the following specifications during the test outlined below.

Ammunition	Grain	(g)	Minimum Velocity fps (m/s)	Number of shots	Muzzle Energy ft-lbs (J)
9 mm Full metal copper jacket with lead core	124	(8.0)	1175 (358)	3	380-460 (515- 624)

A sample of the material is temperature conditioned and then subjected to each of the following tests: three shots fired in a triangular pattern at the center of the sample, two shots fired closely together at the center of the sample, and one shot fired at an unsupported edge of the sample. In order for a material to obtain a listing, the material must pass each test after being conditioned at a variety of temperatures (-26, 55, 72, 95, and 120°F).

Fabrication

Most fabrication techniques used for standard **ACRYLITE sheet** will work with **ACRYLITE BR sheet** material, as the only difference between the two materials is the thickness of the sheet. It is important to keep frictional heat to a minimum during fabrication to reduce internal stress. It is also important to prevent or remove any "notching" along the cut edge of the sheet. The presence of notches could reduce the material's resistance to cracking. Notches can be eliminated by either scraping or bull nosing the edges before installation. Cutting of the material is easily accomplished with the use of a sturdy table saw. A saw blade having carbide tips and a "triple chip" tooth design achieves the best results. For complete information on cutting with a circular saw, refer to Fabrication Tech Brief #2, Cutting with Circular Saws. More intricate cuts can be achieved using a band saw or hand-held reciprocating saw. Flame polishing can be used on **ACRYLITE BR sheet**, however, it is important to keep in mind that heat forming or flame polishing of the sheet could affect the product's bullet resisting properties and is **not** recommended. **ACRYLITE BR sheet** can be cemented using conventional solvent and polymerizable cements. Cementing does generate internal stress within the material, however, that could lower the material's impact resistance. As a result, this procedure should be used in noncritical locations only.

© 2004 CYRO Industries. All rights reserved.

**Call Professional Plastics at (800) 966-7767 or
E-Mail sales@proplas.com
Order Online at www.professionalplastics.com**