Museum Grade L Product Details

UV MAX PROTECTION

Museum Grade UV Max is a specialty acrylic sheet made to offer the maximum protection possible from harmful UV light. This sheet filters out 98% of damaging UV light which causes fading and decomposition of photos, artwork and exhibits. Visible light ranges between the wavelengths of 400 to 700 nm, while UV light is in the 200-400nm wave length. For maximum protection, you need to block any light between the wavelengths of 200-400nm, but let light between 400 and 700 for the material to be transparent.

FEATURES AND BENEFITS

- Excellent optical quality and clarity
- Meets demanding museum standards
- More impact resistant than glass
- Allows for easy fabrication and fitting
- Easy to clean
- Uniform caliper control
- Lightweight
- Superior craze resistance

APPLICATIONS

- Museum artifacts
- Artwork
- Photos

FABRICATION

MACHINING

Museum Grade can be cut, drilled and shaped using traditional acrylic fabricating techniques. To avoid scratching during such procedures, masking should remain in place as long as possible.

CEMENTING

Museum Grade can be cemented using solvent cement, embodied cement and two-component polymerizable cements.

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PAINTING

Museum Grade can be decorated using standard acrylic-based paints and silk-screen inks. As with any acrylic painting or screening operation, avoid heavy coats of paint or excessive flooding of screen inks which allow solvents or thinners to remain in contact with the acrylic surface and cause crazing.

Recommended Paints:

- Grip-Flex®, Wyandotte Sign Finished, Norcross, GA.
- Lacryl®, Spraylat Corporation, Mount Vernon, NY.

Recommended Screen Inks:

- Multi-Vac Series® Inks, Advance Excello, Chicago, IL.
- 70,000® Series Inks, Naz-Dar Company, Chicago, IL.

CLEANING

To clean acrylic sheet:

- Dissolve mild liquid detergent in cool water.
- Dip soft, clean cloth in solution and wring out.
- Wipe the surface of the sheet.
- Allow surface to dry naturally, or wipe with a separate cloth slightly dampened with solution.

WARNING: Do not allow concentrated disinfectant, surgical or methylated spirits, and liquid containing alcohol or any other solvents to come in contact with the MUSEUM GRADE ACRYLIC SHEET.

DISINFECTION

To disinfect acrylic sheet:

- Dilute an antiseptic or hospital concentrate with cool or cold water in the amount recommended on the label for general disinfection.
- Wipe the surface as described under CLEANING.

CAUTION: When using acrylic sheet in conjunction with applications where electrical units are attached, the unit must be unplugged before cleaning or disinfection. Great care must be taken to see that no water or solution enters the electrical compartment.

DUSTING

Use a soft, clean, slightly damp cloth when dusting. Never use a dry cloth. This tends to generate static charge which will attract more dust.

POLISHING

If the surface of the acrylic sheet becomes scratched, it can generally be restored by using a polishing paste designed for use with acrylic or a mild abrasive metal polish applied on a soft clean cloth. If the scratches are too deep to be removed by this method, use a piece of 600 grade waterproof sandpaper (wet). When the surface is smooth, the gloss can be restored with metal polish. Power buffing is only recommended for professional fabricators.

THERMOFORMING

Museum Grade can be thermoformed to any contour – from subtle curves to complex shapes.

HEATING METHODS

There are two basic heating methods utilized in forming Museum Grade:

- Vertical oven heating
- Horizontal oven heating

If vertical oven heating is used, it may be necessary to trim off the edges where clamp marks are present. Clamp along the short edge, exercising great care to ensure the sheets are not exposed to temperatures above 320°F; otherwise stretching of the sheet may occur.

To prevent surface marring, sheets should be loaded onto supporting trays covered with layers of felt or similar material. Dimensional changes will occur when an acrylic sheet is heated freely in an air oven and drape molded without clamping.

The inherent strain present in continuous cast acrylic sheet is relaxed when heated, giivng rise to some shrinkage. Precise shrinkage is dependent upon variables such as cycle time, heating temperatue, and forming method.

TECHNICAL BULLETIN

PHYSICAL PROPERTIES

		TEST METHOD	TYPICAL VALUE [a]	
GENERAL	SPECIFIC GRAVITY	ASTM D792	1.19	
MECHANICAL	Tensile Strength % Elogation @ break Modulus of elasticity % Elongation @ yield	ASTM D638	11,000 psi 7.6% 465,000 psi 6.0%	
	Flexural Strength Flexural modulus (tangent)	ASTM D790	14,700 psi 461,000 psi	
	Impact Strength Compressive strength (x-y plane) Compressive stress @ yield Compressive modulus Charpy (un-notched) Charpy (notched) Shear strength (punch tool) Izod (procedure A)	 ASTM D695 ASTM D256 ASTM D6110 ASTM D732 ASTM D256	 83,300 psi 18,000 psi 279,000 psi 5.0 ft lb/in/in 20.8 J/m 11,200 psi 0.32 ft-lb/in	
	Rockwell Hardness	ASTM D785	M-92	
	Residual Shrinkage (b) (Internal Strength)	ASTM D702	2.5% maximum	
OPTICAL	Refractive Index	ASTM D542	1.49	
	% Light Transmission (visible)	ASTM D1003	92	
	% UV Transmission (280-400 nm) [c]		280 nm 300 nm 320 nm 340 nm 360 nm 380 nm 400 nm	%UVT < 0.012 < 0.012 < 0.017 < 0.014 < 0.017 < 0.035 < 2.00
	Haze	ASTM D1003	Less than 1%	
	Surface Abrasion Resistance [d] (Taber, CS-10)	ASTM D1044	500 cycles : < 1% 1000 cycles : < 2%	

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		TEST METHOD	TYPICAL VALUE [a]
THERMAL	Maximum Continuous Service Temperature		175°F [e]
	Coefficient of Thermal Conductivity		1.45 Btu in./ft^2 hr.°F
	Deflection Temperature under load, 264 psi	ASTM D790	200°F
	Hot Forming Temperature		280°F-340°F (138°F-170°F)
	Coefficient of Linear Thermal Expansion	ASTM D696	3.5 E-05 in/in/°F
	Specific Heat		0.35 Btu/lb (°F)
ELECTRICAL	D-C Resistance Volume Resistivity Surface Resistivity	ASTM D257	> 3.912E+15 Ω/cm > 5.237E+15 Ω/sq
	Dielectric Strength (2000 v/sec)	ASTM D149	354 V/mil
	Dielectric Constant, k' 60 Hz 1 KHz 1 MHz Dissipation Factor, D 60 Hz 1 KHz 1 MHz Arc Resistance	 ASTM D150 ASTM D495	 3.3 3.0 2.7 0.06 0.04 0.02 No tracking
COMBUSTABILITY	Smoke Density Rating Tunnel test (smoke developed) Rate of Flame Spread Fuel contribution factor Ignition temperature Radiant Panel, Flame Spread Index Horizontal Burn	ASTM D2843 ASTM E84 ASTM E84 – ASTM D1929 ASTM E162 ASTM D635	13.5% 385 140 11,300 Btu/lb 750°F (399°C) 219 1.18 in./min.
	UL Horizontal Burn Rating		
WATER ABSORPTION	24 hrs @ 23°F 2 hrs boiling water immersion	ASTM D570	0.2% 0.6%
	Soluble Matter Lost (post immersion)	ASTM D570	nil
	Odour	–	nil

Notes:
a) Value provided should not be used for specification purposes. Some values will vary with sheet thickness.
b) Measured at room temperature before and after heating above 300°F.
c) % UVT based on average wavelength values for .188" and .177" Museum Grade sheet.
d) Numerical values indicate % light transmission loss after indicated cycles.
e) It is recommended that temperatures not exceed 180°F for continuous service.

The information and recommendations in this publication are, to the best of our knowledge, reliable. Users should perform their own tests to determine the suitability of these products for their own particular purposes. Statements made herein should, therefore, not be construed as representations or warranties. The responsibilites of A&C Plastics, Inc. for claims arising out of breach of warranty, negligence, strict liability, or otherwise is limited to the purchase price of the material. Statements made herein concerning the use of the products or formulations described herein are not to be construed as granting a license to operate under any patent of A&C Plastics, Inc. or another, or as recommending the infringement of any patent of A&C Plastics, Inc. or another, and no liability for infringement arising out of any such use is assumed.

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