

Lucitelux® frame grade + Lucitelux® museum grade

Protecting precious contemporary and heritage artworks, photos, memorabilia and more

LuciteLux® Frame Grade and LuciteLux® Museum Grade acrylic sheet products offer a unique set of protective qualities for a variety of contract and home encasement and framing applications. From indoor and outdoor environments including art galleries, museums, and public spaces to home collections of artworks, photographs, prints and memorabilia, we have a product to suit your needs. Both of our grades of protective acrylic sheet have exceptional optical quality and clarity, are lightweight and many times more impact resistant than glass making them particular suitable for high traffic areas where safety, protection and preservation are the key drivers.



For sales and information,
Please contact Jane Nash
1-800-4-LUCITE x 2426

(May 11, 2015)

LuciteLux® frame grade + LuciteLux® museum grade

Characteristics	LuciteLux® Museum Grade Continuous cast acrylic	LuciteLux® Frame Grade Continuous cast acrylic
Excellent optical quality and clarity	•	•
Meets demanding Museum Standards	•	
100% Guaranteed no black specks	•	•
UV and weather resistance	•	•
Maximum UV performance/filters out 98% of UV light	•	
Significantly more impact resistant than glass	•	•
Easy fabrication and fitting	•	•
Lightweight and easy to clean	•	•
Uniform caliper control	•	•
Superior craze resistance	•	•
Thicknesses	.098" .118" .177" .236"	.090" .098" .118" .177" .220"
Sheet sizes	4x8, 51x100, 72x96, 108x126	48" x 96" 51" x 100" 72" x 96"
Masking	White TufGuard™ w/black printing top and bottom	White TufGuard™ w/red printing top and bottom Film – white top, clear bottom

SUMMARY DESCRIPTORS

LuciteLux® Museum Grade	LuciteLux® Frame Grade
Museum Grade UV Max is a specialty acrylic sheet, which filters out 98% of the damaging UV light that causes fading and decomposition of precious artworks, photographs and exhibits. Visible light ranges between 400-700nm wavelengths, while UV light is between 200-400nm wavelengths. For maximum protection, light between 200-400nm must be blocked, but light between 400-700 must be allowed through for the material to be transparent.	Our Frame Grade continuous cast acrylic is the only product available today that has a 100% guarantee of no black specks making it the first choice for protective framing solutions in homes, schools, public buildings and private showcases. Considerably lighter and many times more impact resistant than glass, easy to fabricate and fit, it is also the safest, most economic option for protecting precious artworks, memorabilia, photographs and prints in any indoor or outdoor environment.

SUMMARY APPLICATIONS

LuciteLux® Museum Grade	LuciteLux® Frame Grade
<ul style="list-style-type: none"> • Preservation of museum artifacts • Artwork protection • Photograph and ancient document protection 	<ul style="list-style-type: none"> • Preservation of memorabilia, photographs, prints • Artwork protection in homes and public spaces • Conventional and digital photograph protection

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FABRICATION

LuciteLux® Frame Grade and LuciteLux® Museum Grade continuous cast clear acrylic sheets have high molecular weight and are available in a variety of thicknesses and sheet sizes, which can be specified according to the requirements of the application. The high molecular weight of our acrylic means fabricators can rely on uniform thickness and outstanding fabrication properties. It also exhibits long-term retention of performance characteristics such as, superior craze resistance, excellent optical clarity and impact resistance, while offering designers and fabricators the ultimate design flexibility.

Machining

Frame Grade and 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

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

Painting

Frame Grade and 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 Finishes, 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.

THERMOFORMING

Frame Grade and 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 Frame Grade and Museum Grade:

- Vertical oven heating
- Horizontal oven heating

If a vertical oven 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.

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

Notes:

(1) Based on laboratory tests conducted in a Q-Panel Company Q-U-V Accelerated Weathering Tester equipped with UVA-340 lamps.

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, any liquid containing alcohol or any other solvents to come in contact with LUCITELUX® FRAME GRADE and LUCITELUX® 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 a static charge, which will attract more dust.

POLISHING

If the surface of LuciteLux® Frame Grade or LuciteLux® Museum Grade 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.

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Lucitelux® frame grade

TECHNICAL BULLETIN

PHYSICAL PROPERTIES

		Test Method	Typical Value ^(a)
General	Specific Gravity	ASTM D792	1.19
Mechanical	Tensile Strength ❖ % Elongation @ 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-100
	Residual Shrinkage (b) (Internal Strength)	ASTM D702	2.5 % maximum
Optical	Refractive Index	ASTM D542	1.49
	Light Transmission, Total	ASTM D1003	92%
	Haze	ASTM D1003	Less than 1%
	Yellowness index (YI)		Less than 0.3
	UV Spectral Transmission	ASTM D4802 Beckman	5% max
	Surface Abrasion Resistance (c) (Taber , CS-10)	ASTM D1044	500 cycles : < 1% 1000 cycles: <2%
Thermal	Maximum Continuous Service Temperature		175°F (d)
	Coefficient of Thermal Conductivity		1.45 Btu in./ft ² hr. °F
	Deflection Temperature under load, 264 psi	ASTM D648	200°F
	Hot Forming Temperature		280°-340°F (138°-170°C)
	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 (2000v/sec)	ASTM D149	354 V/mil
	Dielectric Constant, k' ❖ 60 Hz ❖ 1 KHz ❖ 1MHz Dissipation Factor, D ❖ 60Hz ❖ 1KHz ❖ 1MHz Arc Resistance	ASTM D150 ASTM D495	3.3 3.0 2.7 0.06 0.04 0.02 No tracking

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Combustibility	Smoke Density Rating Tunnel Test (smoke developed) ❖ 0.118" ❖ 0.236"	ASTM D2843	13.5%
	Rate of Flame Spread ❖ 0.118" ❖ 0.236"	ASTM E84	385 530
	Fuel contribution factor	-	11,300 Btu/lb.
	Ignition temperature	ASTM D1929	750°F (399°C)
	Radiant Panel, Flame spread index ❖ 0.118" ❖ 0.236"	ASTM E162	219 249
	Horizontal Burn ❖ 0.118" ❖ 0.236"	ASTM D635	1.18 in./min. 0.65 in./min
	UL Horizontal Burn Rating	UL94	94 HB (f1); (f2)
Miscellaneous			
Water Absorption	24 hrs. @ 23°C 2 hrs. boiling water immersion	ASTM D570	0.2% 0.6%
	Soluble Matter Lost (post immersion)	ASTM D570	nil
	Odor	-	nil
	Taste	-	n/a
	Dimensional tolerances, inches ❖ Length – width ❖ Squareness (Δ in length of diagonal)		+1/4" – 0" ≤ 1/4"

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PHYSICAL PROPERTIES

		Test Method	Typical Value ^(a)		
General	Specific Gravity	ASTM D792	1.19		
Mechanical	Tensile Strength	ASTM D638	11,000 psi		
	❖ % Elongation @ break		7.6%		
	❖ Modulus of elasticity		465,000 psi		
	❖ % Elongation @ yield		6.0%		
	Flexural Strength	ASTM D790	14,700 psi		
	Flexural modulus (tangent)		461,000 psi		
Optical	Impact Strength	ASTM D695 ASTM D256 ASTM D6110 ASTM D732 ASTM D256	83,300 psi		
	❖ Compressive strength (x-y plane)		18,000 psi		
	❖ Compressive stress @ yield		279,000 psi		
	❖ Compressive modulus		5.0 ft lb/in/in		
	❖ Charpy (un-notched)		20.8 J/m		
	❖ Charpy (notched)		11,200 psi		
	❖ Shear Strength (punch tool)		0.32 ft-lb. / in.		
❖ Izod (procedure A)					
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 (λ 280- 400 nm) ^(c)			λ	%UVT
				280 nm	< 0.012
				300 nm	< 0.012
				320 nm	< 0.017
340 nm				< 0.014	
360 nm				< 0.017	
380 nm	< 0.035				
400 nm	< 2.00				
Haze	ASTM D1003	Less than 1%			
Surface Abrasion Resistance (d) (Taber , CS-10)	ASTM D1044	500 cycles : < 1% 1000 cycles: <2%			
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 D648	200°F		
	Hot Forming Temperature		280°-340°F (138°-170°C)		
	Coefficient of Linear Thermal Expansion	ASTM D696	3.5 E-05 in/in/°F		
	Specific Heat		0.35 Btu/ lb (°F)		
• Continued on next page. •					
Electrical	D-C Resistance	ASTM D257	>3.912E+15 Ω /cm		
	❖ Volume Resistivity		> 5.237E+15 Ω /sq		
	❖ Surface Resistivity	ASTM D149	354 V/mil		
Dielectric Strength (2000v/sec)					
Dielectric Constant, k'	❖ 60 Hz ❖ 1 KHz ❖ 1MHz	ASTM D150	3.3		
			3.0		
			2.7		
Dissipation Factor, D					

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	❖ 60Hz ❖ 1KHz ❖ 1MHz Arc Resistance	ASTM D495	0.06 0.04 0.02 No tracking
Combustibility	Smoke Density Rating Tunnel Test (smoke developed)	ASTM D2843 ASTM E84	13.5% 385
	Rate of Flame Spread	ASTM E84	140
	Fuel contribution factor	-	11,300 Btu/lb
	Ignition temperature	ASTM D1929	750°F (399°C)
	Radiant Panel, Flame spread index	ASTM E162	219
	Horizontal Burn	ASTM D635	1.18 in. /min.
	UL Horizontal Burn Rating	UL94	94 HB
Miscellaneous			
Water Absorption	24 hrs @ 23°C 2 hrs boiling water immersion	ASTM D570	0.2% 0.6%
	Soluble Matter Lost (post immersion)	ASTM D570	nil
	Odour	-	nil

Notes:

- a) Values 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 .118" 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.

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