

Product Data - Optium Museum Acrylic



1. Physical characteristics

Usage:	Clear, hard coat abrasion-resistant, UV filtering extruded acrylic
Thickness consistency:	+/- 5% (i.e., 6mm +/- 0.3mm) Most uniform consistency of acrylic substrates.
Product identification:	Protective film with product identification label.

2. Performance data

UV Protection 300-380nm	99%
Light transmission, total ASTM D 1003	>98%
Light reflection	<1.5%
Oddy test	Passed
Living building challenge (LBC)	Coatings and/or substrate do not contain any ingredients listed on the LBC Red List.
Accelerated aging: Q-sun Xenon Arc Test	Anti-reflective, anti-static, UV protection and light transmission remain unchanged after 2000 hours (estimated to be approximately 100 years of exposure in indoor environment) of Q-sun Xenon arc testing at exposure intensity of 100,000 Lux.

3. Specifications

Tensile strength modulus of elasticity ASTM D 638	10,000 - 11,300 psi, 400,000 - 490,000 psi
Flexural strength modulus of elasticity ASTM D 790	17,000 psi, 480,000 - 490,000 psi
Impact strength – Izod milled notch ASTM D 256	0.28 ft. lbs/in of notch
Impact strength – Gardner falling weight ASTM 5420-04	18.1 ft-lbs (6.0mm) Acrylic glazing products are significantly more impact-resistant than annealed glass and similar to that of tempered glass. If subject to impact beyond the limit of resistance, it does not shatter into small slivers, but breaks into larger pieces.
Humidity resistance MIL-C-48497A, para 4.5.3.2	No deterioration of coating after 48 hours @ 50°C (122°F), 95% RH
Corrosion resistance ASTM B 117 & B 368-03 & B368-97	48hr. No Deterioration 50°C (122°F), 95% RH After exposure for 7 – 24 hr cycles (168 hours), the coating shows no damage – Passed

These data are presented only as typical properties of the base resins which, to our best knowledge, are true and accurate. However, since conditions of use are beyond our control, all recommendations or suggestions are presented without guaranty or responsibility on our part. We disclaim all liability in connection with the use of information contained herein or otherwise. All risks of such use are assumed by the user. Furthermore, nothing contained herein shall be construed as an inducement or recommendation to use any process or to manufacture or use any product in conflict with existing or future patents.

Product Data - Optium Museum Acrylic



RoHS Compliance testing

(Dangerous substance testing: presence of Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent chromium (Hex-Cr) – Passed

Photographic activity test ISO 18916 & ISO 189002

ISO 18916 Silver Image Interaction • Gelatin Staining • Mottling of Image
• Interaction Detector Overall performance – Passed
ISO 18902 Overall performance – Meet; “Photo-safe” per ISO 18902 section 3.9

Coating Adhesion (Snap Tape) MIL-C- 48497A, para 4.5.3.1

The coating shows no damage after snap removal of tape.

Solubility MIL C-48497A

After a 24-hour immersion or exposure at room temperature (60°-90°F; 16°-32°C), the anti-reflection coating shows no deterioration in the following solutions: • Distilled Water • Saline Solution (170gm of NaCl per 3.8 liters of water) • Acetone • Ethyl Alcohol • Isopropyl Alcohol • Coffee • Coke

4. Temperature and flammability

Flammability Self-Extinguish UV945VA & 5VB

No acrylic will self-extinguish, and therefore our high-performance acrylic glazing products do not meet this requirement. Our high-performance acrylic glazing products are combustible and usually burn to completion if not extinguished. Precautions should be taken to protect this material from flames and high heat sources. Do not allow to enter into soil, waterbodies, or drains.

Flammability Self-Ignition Temp. ASTM-D-1929

830 – 833°F / 443 – 445°C

Horizontal Burning Test Avg. Burn Rate ASTM D-635

1.0 – 1.019 in./min

Smoke density ASTM D-2843

3.4 – 6.4% (3mm)

UL 94 Rating

94HB

Deflection Temp. (264 psi load) ASTM D-648

203 – 210°F / 95 – 99°C

Vicat Softening Point ASTM D-1525

210 – 220°F / 99 – 105°C

Max. Continuous Service Temp.

170 – 190°F / 77 – 88°C

Coefficient of Thermal Expansion ASTM D-696

0.00003 – 0.00004 in/in °F / 0.000054 – 0.000072 m/m °C

These data are presented only as typical properties of the base resins which, to our best knowledge, are true and accurate. However, since conditions of use are beyond our control, all recommendations or suggestions are presented without guaranty or responsibility on our part. We disclaim all liability in connection with the use of information contained herein or otherwise. All risks of such use are assumed by the user. Furthermore, nothing contained herein shall be construed as an inducement or recommendation to use any process or to manufacture or use any product in conflict with existing or future patents.

Product Data - Optium Museum Acrylic



Water Vapor Transmission Rate (@ 50% R.H.)

0.014 gm/100 in² × day Optium Acrylic Glazing performs like regular uncoated acrylic in response to changes in relative humidity. The vapor transmission rate is low enough that reasonable levels of humidity can be maintained inside an acrylic enclosure by using appropriate desiccants. Optium Acrylic Glazing should not be used for applications that must be hermetically sealed.

5. Application recommendations

Space Expansion and Contraction

For indoor applications where temperature remains fairly constant, please allow approximately 1/16" (1.6mm) per 12" (305mm) of length for each 20 degrees F (11 degree C) temperature change. In conditions of extreme humidity or temperature, greater allowances may be necessary. Ensure appropriate exhaust and ventilation at machinery and at places where dust can be generated. Avoid dust formation, and accumulation of static charges. Prohibit sources of spark and ignition, such as smoking. Processing of this product under high temperatures will cause hazardous emissions of vapors, carbon monoxide or carbon dioxide.

Rabbit size

When estimating the rabbit size, allow for the applicable glazing thickness and add to it the thickness of each of the other components used. Ensuring the proper rabbit size is essential in supporting the framing components and helps guard against bowing.

Max. # of Mats

Any number of mats can be used with our high-performance acrylic glazing products.

Applications

Pastels • Charcoal • Static Sensitive Pieces • Custom display cases • Shadowboxes • B&W and Bright Colored Pictures • Posters • Vitrines • Large Pieces • Shipping • Earthquake Zones • Safety Areas • Pieces requiring Maximum UV protection

Can be fabricated and cemented for museum quality, bubble-free joints

Large Framing
Practices 40" x 60"
(1524mm x 1016mm)
and larger acrylic sheets

To prevent bowing, twisting, and/or warping during framing, provide reinforcing support of the acrylic sheet. When working with a spacer to separate the object from the glazing, allow sufficient depth of the spacer at least 1" (25.4mm) of clearance for 60" x 60" (1524 x 1524) frames, and 2" to 2.5" (50mm x 60mm) for a full 6mm, 72" x 120" (3048mm x 1829mm) frames, to protect the object from flexing of the acrylic sheet. Surface deflection will vary by frame size and glazing thickness used. Please contact A&C Plastics for additional estimates if needed.

Silkscreen Printing

Yes; however, the acrylic requires a low temperature process, so the completed silkscreen is fairly soft.

These data are presented only as typical properties of the base resins which, to our best knowledge, are true and accurate. However, since conditions of use are beyond our control, all recommendations or suggestions are presented without guaranty or responsibility on our part. We disclaim all liability in connection with the use of information contained herein or otherwise. All risks of such use are assumed by the user. Furthermore, nothing contained herein shall be construed as an inducement or recommendation to use any process or to manufacture or use any product in conflict with existing or future patents.