

## StatiCon® Glazing

### AC-300™ Cast Acrylic for Cleanroom Construction

#### Description

**StatiCon® Glazing** is a family of transparent plastic sheet products designed to control static electricity in cleanroom construction applications. **AC-300™ Cast Acrylic**, a member of this family, is a premium quality cast acrylic sheet which has been coated with SciCron Technologies proprietary, clear, C-300™ static dissipative coating. This unique technology prevents charge generation on the sheet surfaces, thereby controlling particulate attraction and preventing electrostatic discharge (ESD) events. This performance is permanent and totally independent of humidity. **AC-300 Cast Acrylic** offers the cleanroom builder exceptional design versatility since it fabricates simply with field tools, has fifteen times greater impact resistance than tempered glass, is less than half the weight of glass for the same thickness sheet, and is available in large sheet sizes. It also exhibits excellent optical properties, chemical resistance, surface hardness and mar resistance.

#### Applications

**AC-300 Cast Acrylic** resists tribocharging under all circumstances and cannot generate a charge when properly grounded. This makes it ideal for use in manufacturing and assembly operations for charge sensitive electronic components where it can help prevent both immediate and latent ESD caused defects. Since it resists charge build-up it does not attract contaminants, so it can also help prevent contamination-related rejects in ultra-clean manufacturing operations. Consequently, it is suitable for use in cleanrooms for the semi-conductor, electronic, micro-manufacturing, pharmaceutical, and bio-medical industries. Applications include; perimeter windows, transparent room partitions, light weight floor-to-ceiling window walls, laminar flow air containment screens, mini-environment glazing panels, pass-thru modules, equipment enclosures, and desiccator cabinets.

#### Fabrication

**AC-300 Cast Acrylic** is easily fabricated into flat surface configurations using the same equipment and fabrication techniques generally employed with uncoated acrylic sheet products. It should not be used for heat formed bent configurations since the hard, cured C-300 coated surface is not designed for heat bending. For more information on fabrication, refer to SciCron Technologies Technical Information Bulletin No. SP-01.

#### Features and Benefits

- *Cannot be tribocharged when properly grounded*  
Prevents build-up of static charge and accumulation of harmful contamination.
- *Electrostatic decay in less than 0.05 second per Federal Test Standard 101C, Method 4046.1*  
Results in rapid static dissipation without arcing.
- *Surface resistivity of  $10^6 - 10^8$  ohms per square*  
Provides for ESD control without the need for ionization.
- *Permanence in static dissipation performance*  
Avoids cost of application of temporary topical anti-stats.
- *Humidity independent static charge control*  
Avoids inconvenience of maintaining high levels of humidity and damage caused by such humidity.
- *Advanced technology, uniform surface treatment*  
Avoids charged "hot spots" often found with non-uniform, temporary topical anti-stats.
- *Superior optical properties*  
C-300 premium quality cast acrylic means virtually distortion-free, high clarity glazing.
- *Superior chemical resistance*  
Reduces risk of solvent or chemical surface damage.
- *Inherently light weight material with large sheet sizes*  
Allows much greater design and installation flexibility than heavy, fragile, conventional glazing.
- *Hard, mar resistant, durable surface*  
C-300 surface, harder than the base plastic, reduces risk of damage to the sheet surfaces.
- *Superior fabrication characteristics*  
Results in optimum workability during part fabrication.

#### Availability

**AC-300 Cast Acrylic** is available in clear and a variety of standard transparent colors including tints which filter wavelengths that can interfere with photolithographic operations. White translucent and colored opaque grades are also available.

**Note:** Cell cast is a premium form of acrylic plastic but it has a wider thickness variation than extruded acrylic & should be specified if a narrow thickness tolerance range is required.

#### Standard Dimensions (Nominal)

Thickness: 3mm (1/8"), 4.5mm (3/16"), 6mm (1/4"), 9mm (3/8"), 12mm (1/2") - Note: 9mm and 12mm - cell cast only.  
Standard Sheet Size: 48" x 96" - Other sizes & thicknesses, including oversize sheets, available upon request.

#### Made in USA

The information and statements contained herein are believed to be accurate, however, users should perform their own testing and verification to determine the durability, applicability and suitability of the products for their own purposes. NOTHING CONTAINED HEREIN SHALL BE CONSTRUED AS A REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY EXCLUDED. While SciCron Technologies' surface is more mar resistant than the original substrate, the term "Permanent" or "Permanence" is not intended as a guarantee of durability in any particular application. It is used to distinguish SciCron Technologies' surface from topical anti-stats which must be reapplied on a regular basis. All sales are subject to SciCron's standard terms and conditions of sale, which can be found at: <http://www.sctech.com/termscon>

# StatiCon® Glazing - AC-300™ Cast Acrylic

## Typical Physical Properties (Typical but not guaranteed values for 0.25 inch cell cast material)

Property	Test Method	Units	AC-300 Acrylic
<b>Physical</b> Specific Gravity	ASTM D792	--	1.19
<b>Mechanical</b> Tensile Strength Ultimate Elongation Tensile Modulus Flexural Strength Flexural Modulus Compressive Strength Izod Impact Strength (milled notch)	ASTM D638 ASTM D638 ASTM D638 ASTM D790 ASTM D790 ASTM D695 ASTM D256	psi % psi psi psi psi ft-lb/inch of notch	10,000 4.2 400,000 16,500 475,000 18,000 0.4
<b>Thermal</b> Deflection Temperature (264 psi load) Vicat Softening Point Maximum Continuous Service Temperature Coefficient of Thermal Expansion Coefficient of Thermal Conductivity	ASTM D648 ASTM D1525 -- ASTM D696 Cenco-Fitch	°F °F °F in/in/°F BTU•in/hr•ft²•°F	210 239 180 3.5 x 10 <sup>-5</sup> 1.3
<b>Flammability</b> Horizontal Burn (Flame Spread) UL 94 Rating of the Uncoated Substrate	ASTM D635 UL 94	in/min UL Classification	1.1 HB
<b>Optical</b> 3mm Transparent Clear Transmittance - Total Haze	ASTM D1003 ASTM D1003	% %	80 Less than 5.0
<b>Electrical</b> Surface Resistivity Surface Resistance Electrostatic Decay	ASTM D257 EOS/ESD S11.11 FTS 101C, Method 4046.1*	ohms/sq ohms sec	10 <sup>6</sup> - 10 <sup>8</sup> 10 <sup>5</sup> - 10 <sup>7</sup> Less than 0.05

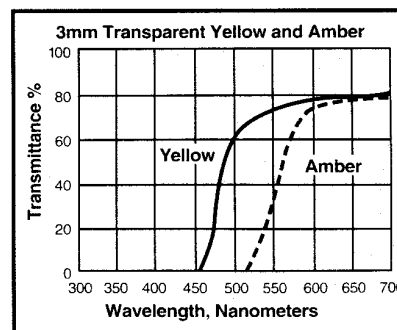
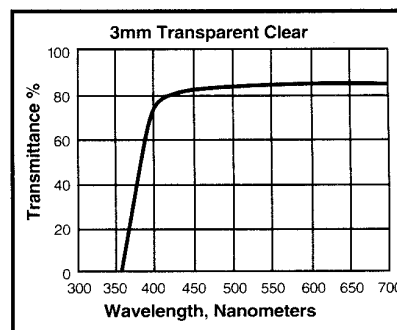
\* Federal Test Standard 101C, Method 4046.1 as described in EIA-541, Appendix F, Measurement of Electrostatic Decay Properties of Dissipative Planar Materials

## Chemical Resistance ASTM D543

Samples immersed in the specified chemicals for 24 hours at room temperature and visually examined.

Chemical	Surface Attack	Visual Evaluation
Deionized Water	None	Clear
30% Sodium Hydroxide	None	Clear
30% Sulfuric Acid	None	Clear
30% Nitric Acid	Slight Pitting	Clear
48% Hydrofluoric Acid	Severe Attack	White, Rubbery
Methanol	Slight Pitting	Clear
Ethanol	None	Clear
Isopropyl Alcohol	None	Clear
Acetone	Severe Pitting	Coating Clear-Plastic

## Light Transmission Spectral Analysis



### Precautions:

1. Acrylic plastic is a combustible thermoplastic. Avoid exposure to flame and excessive heat. Observe fire precautions appropriate for comparable forms of wood and paper.
2. For building applications, comply with applicable code regulations.
3. Clean with soap and water. Do not use abrasives. Avoid inappropriate contact with solvents.