

AC-350[™] Acrylic (Bending Grade) Static Dissipative Plastic

Description

AC-350[™] Acrylic is a plastic sheet product designed to control static electricity for a wide range of end uses. It is a premium quality acrylic sheet which has been surfaced with SciCron Technologies proprietary, clear, C-350[™] static dissipative surfacing. 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-350 Acrylic offers exceptional design versatility since it fabricates simply, is light in weight and is available in large sheet sizes. It also exhibits excellent optical properties and chemical resistance, and superior bending properties.

Applications

AC-350 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 the semi-conductor, electronic, and micro-manufacturing industries. Typical applications include contoured panels and fabricated items which require heat forming or bending, such as; covers, windows, doors, and access panels for electronic equipment, machines and instruments; fabricated desiccators, cabinets, and boxes with heat bent parts; and formed process equipment enclosures. The product also has many general industrial uses, including protection for static charge sensitive manufacturing devices and control of spark discharge in explosive environments.

Fabrication

AC-350 Acrylic is easily fabricated into a variety of flat and bent configurations using the same equipment and fabrication techniques generally employed with unsurfaced acrylic sheet products. This product is designed to accommodate heat bending, however, care must be taken to avoid applying too much heat to prevent damage to the C-350 surface. When solvent welding, it is recommended that the C-350 surface be removed to achieve the best bond strengths. For more information on fabrication refer to SciCron Technologies Technical Information Bulletin No. SP-02.

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 10⁶ - 10⁸ 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 conductive discontinuities (charged "hot spots") often found with non-uniform temporary topical anti-stats. Excellent optical properties

C-350 surface provides excellent clarity for optimum use of available light.

Superior chemical resistance

Reduces risk of solvent or chemical surface damage.

Superior fabrication and bending characteristics Provides maximum versatility and workability during part fabrication.

Availability

AC-350 Acrylic, in cell cast type, is available in clear and a variety of standard transparent colors including tints which filter wave-lengths that can interfere with processing operations. White translucent and colored opaque grades are also available. Continuously cast and extruded types are available in some sizes and thicknesses upon request.

Note: Cell cast is a premium form of acrylic plastic but it has a wider thickness variation than other acrylic types. Therefore, continuously cast or extruded material 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 and 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, or as permission, inducement, or recommendation to practice any patented invention without license. IMPLIED WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, or as permission, inducement, or recommendation to practice any patented invention without license. 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.

AC-350 Acrylic (Bending Grade)

| Property | Test Method | Units | AC-350 Acrylic |
|---|----------------|------------------------------|-----------------------------------|
| Physical | | | |
| Specific Gravity | ASTM D792 | | 1.19 |
| Pencil Hardness | ASTM D3363 | Hardness Scale | 3H |
| Mechanical | | | |
| Tensile Strength | | | |
| Ultimate | ASTM D638 | psi | 10,000 |
| Elongation | ASTM D638 | % | 4.2 |
| Tensile Modulus | ASTM D638 | psi | 400,000 |
| Flexural Strength | ASTM D790 | psi | 16,500 |
| Flexural Modulus | ASTM D790 | psi | 475,000 |
| Compressive Strength | ASTM D695 | psi | 18,000 |
| Izod Impact Strength (milled notch) | ASTM D256 | ft-lb/inch of notch | 0.4 |
| Thermal | | | |
| Deflection Temperature (264 psi load) | ASTM D648 | °F | 210 |
| Vicat Softening Point | ASTM D1525 | °F | 239 |
| Maximum Continuous Service Temperature | | °F | 180 |
| Coefficient of Thermal Expansion | ASTM D696 | in/in/°F | 3.5 x 10⁻⁵ |
| Coefficient of Thermal Conductivity | Cenco-Fitch | BTU in/hr ft ² °F | 1.3 |
| Flammability | | | |
| Horizontal Burn (Flame Spread) | ASTM D635 | in/min | 1.1 |
| UL 94 Rating of the Uncoated Substrate | UL 94 | UL Classification | HB |
| Optical | | | |
| 3mm Transparent Clear Transmittance - Total | ASTM D1003 | % | 80 |
| Haze | ASTM D1003 | % | Less than 3.0 |
| Electrical | | | |
| Surface Resistivity | ASTM D257 | ohms/sq | 10 ⁶ - 10 ⁸ |
| Surface Resistance | EOS/ESD S11.11 | ohms | 10 ⁵ - 10 ⁷ |
| Electrostatic Decay | FTS 101C, | sec | Less than 0.05 |
| | Method 4046.1* | | |

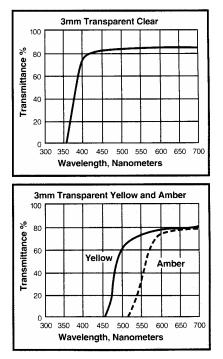
* Federal Test Standard 101C, Method 4046.1 as described in EIA-541, Appendix F, Measurement of Electrostatic Decay Properties of Dissipative Planar Materials

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 | Cloudy |
| 48% Hydrofluoric Acid | Severe Attack | White, Rubbery |
| Methanol | None | Clear |
| Ethanol | None | Clear |
| Isopropyl Alcohol | None | Clear |
| Acetone | Severe Pitting | Very Cloudy and Rubbery |
| Methylene Chloride | Sample Dissolved | Sample Dissolved |

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.