SciCron Technologies

Product Information

Mar-Con® 551 Acrylic – Forming Grade
Abrasion Resistant Plastic

Description

Mar-Con® 551 Acrylic - Forming Grade is an abrasion resistant plastic sheet product designed for a variety of high performance end uses in which the sheet will be heat formed or bent into soft radius shapes. It is a premium quality acrylic sheet, coated with SciCron's Mar-Con 551 advanced technology cross-linked coating. This coating has excellent resistance to a wide variety of chemicals and solvents and is more abrasion resistant than the acrylic plastic substrate. This combination of properties provides enhanced resistance to hazing, marring, and abrasion, of the sheet surfaces from cleaning, handling, and defacement efforts. **Mar-Con® 551 Acrylic - Forming Grade** also exhibits excellent optical properties and fabrication characteristics. This product can be used in many more applications than would be practical for an uncoated acrylic sheet.

Applications

Mar-Con® 551 Acrylic - Forming Grade is designed to be used where there is concern about abrasion of the surfaces of the plastic sheet from handling and other moderate abuse. It is also designed for applications requiring improved splash and wipe down resistance to many common chemicals and solvents which would normally damage the acrylic sheet surfaces. The Forming Grade Mar-Con® 551 coated surface helps prevent such damage from short-term exposures to these materials. Typical applications for **Mar-Con® 551 Acrylic - Forming Grade** include formed fabricated items, such as: equipment covers, display components, safety shields, and curved machine guards.

Fabrication

Mar-Con® 551 Acrylic - Forming Grade is easily fabricated into a variety of flat and bent surface configurations using the same equipment employed with uncoated acrylic sheet products. *The product is designed to accommodate drape forming and heat bending, however, care must be taken to avoid applying too much heat to prevent damage to the abrasion resistant coating.* Soft radii shapes and bends can be achieved which are smooth, clear, and uniform, if recommended forming techniques are employed. Some distortion and loss of abrasion resistance in a bend area is normal. On tight bends, particularly in thicker materials, there may be some very fine haze lines in the bend area. When solvent welding, it is necessary to remove the Mar-Con 551 coated surface mechanically to achieve a good bond.

Note: This product is not designed for vacuum formed or drawn configurations. For more information, refer to SciCron Technologies Technical Information Bulletin No. MP-02.

Features and Benefits

- *Flexible, abrasion resistant, durable surface*

The Forming Grade Mar-Con 551 coated surface, more abrasion resistant than the base plastic, reduces risk of damage to the sheet surfaces from frequent cleaning and handling.

- *Superior chemical and solvent resistance*

Reduces risk of solvent or chemical damage to the sheet surfaces.

- *Excellent optical properties*

High clarity, high gloss coating maintains optimum light transmission without distortion.

- *Advanced technology, uniform surface treatment*

Provides enhanced abrasion and chemical resistance without changing the appearance of the acrylic surfaces.

- *Graffiti resistance*

Easy to clean hydrophobic surface

- *Superior fabrication and bending characteristics*

Results in optimum heat forming during part fabrication.

Cleaning

The Forming Grade Mar-Con 551 coated surface can be cleaned with a variety of common cleaners (see reverse side for specific recommendations). Care should be taken to avoid the use of any cleaner or cleaning solution which contains an abrasive. In addition, all wipes, sponges, and drying towels should be clean and free of any grit which could damage the surface.

Availability

Mar-Con® 551 Acrylic - Forming Grade, in cell cast type, is available in clear and a variety of standard transparent colors. White translucent and colored opaque grades are also available. Continuously cast, extruded types and impact modified types are available in some sizes and thicknesses upon request.

Note: Cell cast is a premium 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 needed.*

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 available upon request.

Made in USA

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Mar-Con® 551 Acrylic - Forming Grade

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

Property	Test Method	Units	Mar-Con 551 Acrylic Forming Grade
Physical			
Specific Gravity	ASTM D792	--	1.19
Taber Abrasion[1] - Δ Haze	ASTM D1044	%	Less than 8
Weighted Steel Wool Rub Resistance[2]	Internal	Visual Scratches	Light Scratches
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	3.5×10^{-5}
Coefficient of Thermal Conductivity	Cenco-Fitch	BTU•in/hr•ft²•°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			
Transmittance, 3mm Transparent Clear - Total	ASTM D1003	%	92
Haze	ASTM D1003	%	Less than 1.0

1. Test conditions - 500 gram load, 100 revolution exposure, CS-10F Calibrase Wheel
2. Test conditions – 25 double rubs of #0000 steel wool under a 2 pound (908 gram), ½" contact area

Chemical Resistance ASTM D-1308

Samples immersed in listed chemicals and then examined for visible attack at 15 minutes, 1 hour, and 24 hours

Chemical	Time for visible Attack
Acetone	< 1 hour
Methyl Alcohol	> 24 hours
Isopropyl Alcohol	> 24 hours
Kerosene	> 24 hours
Toluene	< 1 hour
Sodium Hydroxide (10%)	> 24 hours
Hydrochloric Acid (10%)	> 24 hours
Sulfuric Acid (10%)	> 24 hours
Nitric Acid (10%)	> 24 hours

* Solvent attacked specimen edges immediately, coating intact for more than 1 hour.

Cleaning and Graffiti Removal

Solvents and Cleaning Liquids Found Effective Under Laboratory Conditions

Aqueous solutions of the following can be applied carefully with a soft cloth or sponge for ordinary dirt and grime.

Joy® Windex®
Formula 409® Sparkle™

Rinse with clean water before drying with a chamois or cellulose sponge.

Never use an abrasive cleaner or scouring pad.

The following solvents can be used to remove graffiti and other stubborn stains:

Isopropyl Alcohol Methanol
Naphtha (VM&P Grade) Kerosene
Butyl Cellosolve (for paints, inks, lipstick, etc.)

Always remove residual solvent with an aqueous cleaner and a final rinse with clean water.

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.