Visions In Plastics

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POLYCARBONATE FINISHING

SANDING

MAKROLON® Polycarbonate sheet can be sanded using both wet and dry techniques. Gumming can result from dry sanding. Wet sanding produces a smooth finish. In both instances, the part will require further finishing in order to restore its high gloss.

MAKROLON Polycarbonate sheet can also be buffed using a 2-wheel system. The first wheel uses a buffing compound to remove shallow scratches. The second buffing wheel is used for restoring the glass.

JOINT-PLANING

A standard woodworking jointer-planer is an excellent edge finishing machine for MAKROLON Polycarbonate sheet. Blades must be carbide or high-speed steel. Avoid removal of too much stock on each pass. 1/64" or less stock removal normally yields the cleanest edge. Trying to remove too much material results in a rough edge or cracking of the sheet.

If smoother edges are required, wet sanding with fine grit sandpaper is recommended.

SOLVENT POLISHING

In order to improve the look of saw-cut edges, begin by sanding the edges smooth. For moother, glossy edges, consider solvent polishing with MEK or methylene dichloride. To prevent humidity blush after dying, it may be necessary to add a small amount of a slow-dying component such as diacetone alcohol and glacial acetic acid. Since MAKROLON Polycarbonate sheet has such good chemical resistance properties, keep in mind that solvent polishing cannot be expected to totally eliminate sand marks from the sheet edge.

Note: Use extreme caution when working with solvents. Adequate ventilation is essential. Control exposure levels according to OSHA guidelines. Obtain Material Safety Data Sheets from the solvent manufacturer.

HOT STAMPING

MAKROLON Polycarbonate sheet is easily decorated by hot stamping. Normal operating conditions are: head (die) temperatures 375°F; dwell time 2-3 seconds at 60 psi.

Contact foil manufacturer for recommended application guidelines.

SCREEN PRINTING

Standard silk screening equipment with screens of varying mesh 8x-16x regulating the amount of ink coverage on MAKROLON Polycarbonate sheet provides excellent sign product.

As with all thermoplastics MAKROLON Polycarbonate sheet must be clean and free from surface residuals prior to screening. Many screeners use a pre-rinse of 50% water and 50% isopropyl alcohol to clean the surface of MAKROLON Polycarbonate sheet. Be sure to use soft nonabrasive cloths when cleaning to avoid scratching MAKROLON Polycarbonate sheet. Ionized air also providees a good method for removing lint and dust.

After screening, separate sheets on a drying rack until ink is completely dry. DO NOT pack sheets for shipment until inks are dry.

UV cure inks can be used with heavy guage MAKROLON Polycarbonate sheet but intense or prolonged UV may have a damaging effect on thin guages. It is not recommended for MAKROLON Polycarbonate sheet under .060 gauge as some loss of physical properties occurs.

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PAINTING

Many paints are available for MAKROLON® Polycarbonate sheet. As with screen printing it is important to prepare the surface prior to painting by precleaning. Use a mixture of 50% water an 50% isopropyl alcohol to remove surface masking residue. Be sure to dry thoroughly prior to painting. Use a soft nonabrasive cloth or sponge to avoid scratching MAKROLON Polycarbonate sheet. Conventional spray, spray masked, roller coat and brush are common application methods.

Avoid using paints containing toluene, xylene or solvents that will craze MAKROLON Polycarbonate sheet.

Be careful when using the paper masking for the design, Sharp knives can notch MAKROLON Polycarbonate sheet and allow crazing to occur. Be sure not to allow razor knives to penetrate the MAKROLON Polycarbonate sheet when cutting through masking paper.

A number of companies market paint systems for MAKROLON Polycarbonate sheet and provide technical advice on application.

PAINT AND INK REMOVAL

Use caution when removing overspray or drips. Be sure that the solvent will not attack and craze polycarbonate, Isopropyl

alcohol, VM&P naptha or similar solvents have been successfully used. Be sure to rinse with clear water after solvent application. Do not use scrapers, blades, knives etc., as they will scratch MAKROLON Polycarbonate sheet. Always test a small area and observe possible attack before subjecting large sheet to solvent.

NOTES ON MAKROLON AR POLYCARBONATE SHEET

Coated sides of MAKROLON AR Polycarbonate sheet cannot be painted because of the abrasion-resistant coating. However, sheet that is only coated on one-side (MAKROLON AR-1 Polycarbonate sheet) can be reverse screened on the uncoated side using standard painting techniques for polycarbonate. This material is an excellent choice for durable graphics applications in high traffic areas.