



MMX and MMHD are photo-imageable sandblast masks that offer an alternative to plotter-cut or hand-cut vinyl. These advanced photoresist films provide deep etching ability similar to vinyl while offering the quick and easy benefits of a photoresist. With MMX and MMHD, users can achieve better image quality without the hassle of weeding.

MMX photoresist film comes in 10 mil (250 micron) thickness, and is available in rolls.

MMHD photoresist film comes in 6 mil (150 micron) thickness, and is available in rolls.

Benefits of MMX and MMHD

- Superior resolution compared to standard vinyl
- Excellent contrast for easy positioning
- Pressure sensitive adhesive
- Deep etching capability
- Simple cleanup with zero adhesive residue
- Easy membrane removal

Required Materials

- Exposure Device
- Washout Equipment
- Abrasive 60-180 Mesh Size
- Blast Equipment

Recommended Materials

Contact IKONICS Imaging for a list of recommended equipment and supplies.

Safety and Handling

Refer to SDS for safety information.

Storage

- Store packaged film in a cool, dry area
- Ideal conditions: 30-60% humidity; 60-80°F
- Do not refrigerate
- Shelf life is indefinite

Warranty

IKONICS Imaging warranties this product free from defects for 12 months.

Light Sensitive Product

MMX and MMHD are light-sensitive during film exposure and image development. Although MMX and MMHD have some tolerance to white light, it should be used in yellow or safe light conditions for optimum results. General purpose gold or yellow fluorescent or incandescent lights, red ortho-safelights or yellow bug lights can also be used.

Artwork

Generate a positive/negative of artwork. For best results, artwork should have dense black areas, with crisp, clean line edges. Artwork should be produced so black = blast.

Acceptable *film media* includes AccuArt™ 3 or AccuBlack film, stat camera or image setter. Laser films and transparencies should not be used with MMX or MMHD.

Front Blast

Positives/negatives should be right-reading emulsion (toner) **side down** for **front blasting**.

Back Blast

Positives/negatives should be right-reading emulsion **side up** for **back blasting**.

Film Exposure

1. Place the emulsion/toner side of the artwork against the slip sheet of the film. The emulsion side of the film is duller and thinner in appearance than the carrier side.
2. A vacuum frame should be used to assure firm contact between the artwork and the film during exposure. Compression frames are also acceptable.
3. Be sure to have a non-reflective black backing opposite your UV light source to avoid possible reflection causing overexposure.

NOTE: *Overexposure can cause image not to washout; whereas underexposure can cause entire mask to washout prematurely.*

MMX EXPOSURE:

Light Source	Distance	Exposure Times
5 KW Metal Halide	40in/100cm	18-22 seconds
26-1KS	18in/45cm	20-24 seconds
Quick Image	N/A	16-20 seconds
Letalite	N/A	Not Recommended
<i>*low intensity exposure units not recommended</i>		

MMHD EXPOSURE:

Light Source	Distance	Exposure Times
5 KW Metal Halide	40in/100cm	8-12 seconds
26-1KS	18in/45cm	10-14 seconds
Quick Image	N/A	8-12 seconds
Letalite	N/A	50-70 seconds
<i>*low intensity exposure units not recommended</i>		

MMX & MMHD FILM STRUCTURE:

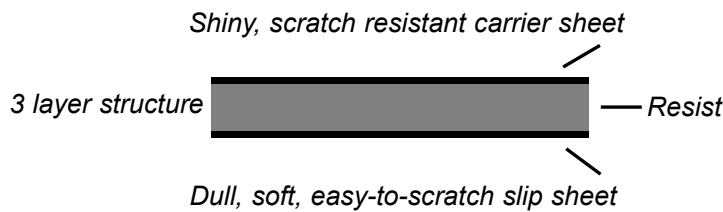


Image Development

1. Remove the slip sheet from the film. Position the exposed film in an upright vertical position with the slip sheet/adhesive facing outward, clipping the film to a support plate in the washout area.
2. Wash out film with water up to 130°F (54° C). The warmer the water the faster the washout. MMX and MMHD washout speed may be increased with a light duty pressure washer up to 2500 psi (137 bar).
3. Spray in a slow and even motion until the image area develops clear. Do not concentrate on one spot as delamination of emulsion from the carrier sheet may occur. A gentle, steady sweeping motion from about 8-12 inches (20-30 cm) away is recommended.

Suggested Washout Guidelines

Washout times are influenced by the amount of artwork detail (high detail = longer), amount of film being developed, water temperature, and water pressure used. Do not wash MMX or MMHD film under running water from a faucet.

Drying of Mask

1. Remove excess water from mask with a blow dryer or pressurized air. Blotting the film with a lint-free rag is suggested to speed the drying process.
2. At room temperature, hang dry the mask for 45-60 minutes (drying film on a flat surface is also acceptable). When dry, film should be uniform in color and should be tacky to the touch. High humidity will extend drying time to 90 minutes. Drying can be accelerated with heat but overdrying will cause a loss of tack levels. Excess heat can cause deformation of the film.

If available, a drying chamber with heated circulating air will significantly reduce drying time. At 100°F (49°C), drying will take approximately 10-30 minutes.

Image Transfer

1. Optional application and blasting temperature is 60-80°F (16-27°C). Temperatures of the film or substrate below 50°F (10°C) can compromise adhesion. Additional compatible adhesives can be used on mask or substrate.
2. Apply the adhesive side of the film to the substrate using a roller or squeegee. Take special care to avoid wrinkles or air pockets. Air pockets under the mask may cause lack of adhesion, resulting in blow-offs during blasting.
3. To remove air bubbles, reposition the mask or pop it with a pin and tape over the area to avoid blast through.

Blast

1. Hold the blast gun 3-8 inches (8-20 cm) away from the object and perpendicular to its surface.
2. Recommended maximum pressure for a pressure-pot sandblast system is 80-100 psi (5-7 bar). Siphon systems are not recommended.
3. Grit size should be 60-180 mesh. Recommended abrasive media is either pure aluminum oxide or silicon carbide. Other abrasive should be tested prior to use. All manufacturer safety precautions should be closely followed.

Remove Mask

Peel the mask from the substrate. Fine pieces of film can be removed by rolling them off with your finger tips or sharp razor blade.

Color Filling

Color filling is a popular way to add a unique touch to sandblasted projects. Once the piece has been sandblasted, use pressurized air to remove any abrasive from the etched area. The photoresist will protect the areas you do not want to color. Spraying the mask with a thin paint coating is preferable since excess paint will dry over the top of the photoresist, allowing the paint to pull away from the etched surface during resist removal. Please contact your IKONICS Imaging representative for a detailed description on benefits and use of color filling and a complete list of recommended paints.