

INSTRUCTIONS

ImagePro®

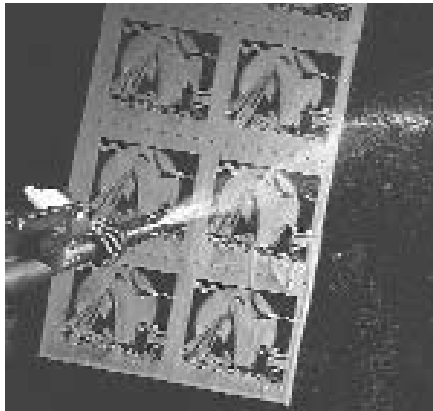
S U P E R

PHOTO RESIST FILM

ImagePro® Super is one of the most user-friendly photo resist films on the market today. With its popular white-light tolerance, wide exposure latitude and inherent durability, you'll be on the way to sandcarving success in no time.

ImagePro Super is perfect in most climate temperature conditions with the exception of high humid areas where ImagePro® Red is the preferred photo resist. The pliable quality of ImagePro Super makes it an ideal product when working on curved surfaces and sandcarving in cool, dry temperatures. Furthermore, ImagePro Super requires no blotting, which makes the entire process that much more efficient.

- Excellent Pliability for Curved Surfaces
- Tremendous Durability in Cool, Dry Areas
- Wide Exposure & Development Latitude
- User Friendly



ImagePro® Super photo resist film is available in 3 and 5 mil thicknesses, and is available in both rolls and cut sheets.

- White Light Tolerant
- Detailed Resolution
- Environmentally Safe

MATERIALS NEEDED

Required

Exposure Device
Washout Equipment
Adhesive
Blast Equipment

Recommended

Contact PhotoBrasive®
Systems for a list of
recommended equipment
and supplies.

SAFETY CONSIDERATIONS

Refer to MSDS for safety information.

LIGHT SENSITIVE PRODUCT

ImagePro® Super film is a light-sensitive product. Although it has some tolerance to white light, for optimum results it should be used in yellow or safe light conditions. General purpose gold or yellow fluorescent or incandescent lights, red ortho-safelights or yellow bug lights can also be used. Contact PhotoBrasive for information on safe lights.

STORAGE

- Store packaged film in a cool, dry area.
- Do not refrigerate.
- Shelf life is indefinite. PhotoBrasive Systems warrants this product free from defects for 12 months.

IKONICS IMAGING™

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ARTWORK DEVELOPMENT

The most important element of the sandcarving process is to work with quality artwork. Quality artwork is defined as artwork that has blastable areas that are completely black (you should not be able to see light coming through any of the areas) and non-blastable areas that are completely clear. The easiest rule to remember is BLACK=BLAST. Always remember that your photo resist mask is an exact replica of your artwork.

There are many options available for generating a photo tool. All options have pros and cons. Following is a simple description of each of your options:

Film Positive – this is the best option. Film positives have the emulsion (or the black areas on your artwork) fused into a clear film allowing for superior detail, excellent opacity, and reusability. The only downfall to using a film positive is cost. The equipment to produce film positives is expensive and if you don't own the equipment, the cost of

having someone produce one for you may be cost prohibitive.

Inkjet Media – Recent technological advancements in inkjet film have made artwork generation faster and more economical without sacrificing artwork quality.

- AccuArt™ 2 *Premium Waterproof Inkjet Film for Pigment & Dye Based Systems*
- AccuArt™ *Premium Waterproof Inkjet Film*
- AccuBlack™ *Waterproof Inkjet Film for Positives and Negatives*
- AccuMark™ *Inkjet Film for Positives and Negatives*

Paper Media – UVII Vellum and PositiveFX Drafting Film (for use with laser printers) – Until inkjet media came along, laser printing on vellum or drafting film was really the only cost effective way to produce photo tools in-house. The biggest advantage of using vellum or drafting film is price. However, inkjet media prices have come down in the past few years. Typically opacity is marginal, unless sprayed with a toner enhancement.

FILM EXPOSURE

1. Place the ImagePro Super, shiny side away from the exposure unit light. The dull, or the emulsion side will be facing towards the exposure unit light.
2. Place the photo tool with the toner, ink, or emulsion side down on top of the dull side of the ImagePro Super film.
3. Expose. See suggested light sources and exposure times chart.
4. Once exposure is complete, remove from the exposure unit.

Suggested Light Sources & Exposure Times (all thicknesses)

| Light Source | Distance | 3 mil | 5 mil |
|-------------------|--------------|-------------|--------------|
| 5 KW Metal Halide | 40 in/100 cm | 10-15 sec. | 15-25 sec. |
| 26-1K | 18 in/45 cm | 30-50 units | 45-60 units |
| Letralite | n/a | 60-90 sec. | 90-120 units |

HELPFUL HINTS:

1. A vacuum or compression frame should be used to assure firm contact. This will keep light from getting under the black areas of your photo tool.
2. Overexposure will cause a long, difficult washout. Overexposure will happen quickly with fine lines.
3. Underexposure will cause the image to washout prematurely resulting in detail loss.
4. Be sure to have a non-reflective black backing opposite your UV light source to avoid possible reflection causing overexposure.
5. ImagePro Super is a light sensitive product. Although it has some tolerance to white light, for optimum results it should be used in yellow or safe light conditions.

IMAGE DEVELOPMENT

Hand-held devices:

1. Position the exposed ImagePro Super in an upright vertical position with the emulsion (dull) side of the film facing outward. Commonly used support plates are white clipboards; metal covered with white contact paper using magnets to keep the film in place, or lighted washout booths fit with a film clamping system. Backlit booths with UV safe lights or white backgrounds make it easier to see when ImagePro Super is fully developed.
2. Washout the film with warm water. The warmer the water, the faster the washout.

3. Spray using even strokes until the image area develops clear. Do not concentrate on one area as distortion of the image may occur.

Automated Washout – Typhoon

1. Fasten the exposed ImagePro Super with the emulsion (dull) side of the film facing outward on the white support plates by using the metal clamps.
2. The Typhoon can hold up to 8 10" x 12" sheets of film at one time.
3. Once loaded, close the lid and set the timer for the suggested washout time.
4. Refer to the Typhoon instructions for complete suggested washout times.

HELPFUL HINTS

1. Washout times are influenced by the amount of detail in the artwork. The finer the detail, the longer the washout.
2. Washout times are also influenced by the water temperature and the amount of water pressure used. The warmer the water and the higher the water pressure, the faster the washout

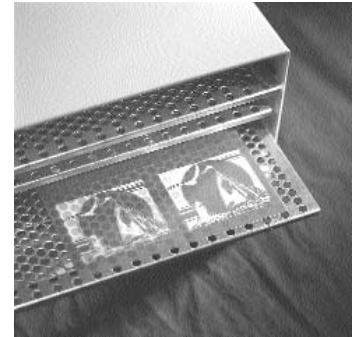
Suggested flat spray nozzle or pressure washer times

| Washout Source | Distance | 3 mil | 5 mil |
|----------------------------------|-------------|--------------|------------|
| Flat Spray Nozzle | 8-12 inches | 1-2 min. | 1.5-3 min. |
| Pressure Washer (400 - 1200 psi) | 8-12 inches | 30 - 60 sec. | 45-90 sec. |

FILM DRYING

1. Remove excess water from ImagePro Super to accelerate the drying times. This can be accomplished by using pressurized air.
2. At room temperature, ImagePro Super will dry in 20-40 minutes. Once dry ImagePro Super will be uniform in color and should not be tacky to the touch. High humidity may extend the drying time to 30-60 minutes.
3. For faster drying times, use the PB500 Dryer. The PB500 Dryer will dry four sheets of ImagePro Super in approximately 10 minutes.

At 100°F (49°C), drying will take approximately 10 minutes.



ADHESIVE APPLICATION

PhotoBrasive Systems has two options for application adhesives: B.A.T. Blastable Adhesive Tape or coat-on liquid Adhesive.

B.A.T. Method

B.A.T. is a water soluble blastable adhesive coated onto a special transfer paper. B.A.T. can be applied either directly to the substrate or to the mask.

To apply to substrate

1. Cut a piece of B.A.T. to a size slightly larger than the ImagePro Super.
2. With the adhesive side facing the substrate, apply B.A.T. using a hard squeegee. Be sure to use sufficient pressure to ensure a complete transfer.
3. Remove B.A.T.'s paper backing and apply ImagePro Super (emulsion side down) to the substrate. Rub thoroughly to ensure adhesion.

To apply to ImagePro Super

1. Apply the dry processed ImagePro Super (emulsion side down) to the adhesive side of the B.A.T. using a hard squeegee. Use sufficient pressure to ensure a complete transfer of adhesive.
2. Remove the ImagePro Super from the paper backing of the B.A.T.
3. Apply adhesive coated ImagePro Super to substrate using a hard squeegee. Rub thoroughly to ensure adhesion.

Liquid Adhesive - A water soluble adhesive can be applied by brushing it directly on the object to be etched or spraying it directly onto the mask.

Brushing:

1. Apply a thin, even coat using a foam brush.
2. The adhesive is a white, milky color during application and dries to a clear finish. Drying takes approximately 10 minutes.
3. After the adhesive turns clear, there is an approximate two hour window to apply the mask to the adhesive before loss of tack occurs.
4. Apply the mask to the adhesive. Use a squeegee or roller to prevent large wrinkles or air pockets under the mask.
5. Once the mask is placed on the adhesive coated area, bonding between the mask and substrate will improve over time. Object(s) can sit overnight or for days without causing tack deterioration.
6. Store adhesive with the cap/spout closed at room temperature. To prevent contamination, never pour used adhesive back into the container for re-use.



HELPFUL HINTS:

1. To completely eliminate the adhesive step, try one of our self adhesive products: RapidMask™, UltraPro™ Blue, or UltraPro™

IMAGE TRANSFER

After applying the adhesive, check for the following prior to blasting:

1. Avoid wrinkles or large air pockets. Air pockets under the mask may cause lack of adhesion, therefore, resulting in blow-offs during blasting.
2. A good transfer may result in very small bubbles on the mask surface which will not interfere with either the transfer or the blasting.
3. Apply pressure to the back of the mask to assure firm contact of the mask to the adhesive.
4. Carrier Removal
 - a. Apply pressure to the mask to assure firm contact to the substrate.

- b. Flick a corner of the mask to loosen the carrier sheet. Remove.

- c. Check for any large air pockets. Air pockets under the mask can affect adhesion and may result in blow-offs during blasting.

- d. Pop any large air bubbles with a pin and tape over the area to avoid blast through.

- e. Tape non-stenciled area with masking tape to prevent unwanted etching.



SANDCARVING

1. Hold the blast gun approximately 4 – 6 inches away perpendicular to the object. Move the blast gun evenly over the image area to create a smooth, even etch.
2. When using a pressure-pot system, such as the CrystalBlast 3624 or Sandcarver II, the recommended blasting pressure is 25-35 psi for 3 mil and up to 40 psi on 5 mil.
3. When using a siphon system, such as the Mini-Blaster, the recommended blasting pressure is 60-80 psi.

4. Recommended abrasive is 180 or finer depending on the image detail. Aluminum oxide and silicon carbide are most commonly used.

5. For stagecarving or deep carving, use ImagePro Super 5 mil.

6. Recommended blasting temperature is 68F (20C) or warmer.



MASK REMOVAL

ImagePro Super is a water soluble product. Soaking in warm water is a very fast way to remove the mask with little risk of damage to the substrate. This method is the preferred method for large production runs. An alternative method is to peel the mask from the substrate. The majority of the mask can be peeled up in one large piece. Fine pieces, such as centers of letters, can be removed by rolling them off with your fingertips or water. This is the preferred method for small production runs or for applications where water cannot be used.