

ImagePro® Red

PHOTO RESIST FILM

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

ImagePro® Red photo resist film is an advanced film offering excellent imaging, fast exposure and superior durability. ImagePro® Red also offers excellent humidity resistance for ease of use in hot and humid conditions. ImagePro® Red offers:

- Excellent Resolution
- Fast Exposing
- Humidity Resistance—Dries fast, easy carrier release
- White Light Tolerance
- Improved Peelability—Easy clean-up, perfect for color filling

MATERIALS NEEDED

Required	Recommended
Exposure Device	Contact IKONICS
Washout Equipment	Imaging for a list of
Adhesive	recommended
Blast Equipment	equipment and
	supplies.

ARTWORK

1. Generate a positive (negative) of artwork. For best results, positives should have dense black areas, with crisp, clean line edges. Film or paper positives are acceptable.
 - Acceptable **film positive media** includes AccuArt™ inkjet film, stat camera or image setter. Film positives (negatives) are recommended for halftone artwork (35 -45 dpi). *Transparencies are not recommended.*
 - Acceptable **paper positive media** includes vellum or drafting film output by a laser printer or professional photocopier. Please note that results may vary based on equipment, toner/ink quality, and media used.

FILM EXPOSURE

1. Place the emulsion/toner side of the artwork against the emulsion side of the ImagePro® Red film. The emulsion side has a duller appearance compared to the carrier side.
2. A vacuum frame or compression frame should be used to assure firm contact between the artwork and the ImagePro® Red film during exposure.
3. Be sure to have a non-reflective black backing opposite your UV light source to avoid possible reflection causing overexposure.



SAFETY CONSIDERATIONS

Refer to MSDS for safety information.

LIGHT SENSITIVE PRODUCT

ImagePro® Red 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.

STORAGE

- Store packaged film in a cool, dry area.
- Do not refrigerate.
- IKONICS Imaging warrants this product free from defects for 12 months.

FRONT BLAST

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

BACK BLAST

Positives should be right-reading emulsion side down for back blasting.



NOTE: Exposure times are suggested only as a guide. All exposure times are approximations and will vary based on type of UV light source used, age of light source, and local voltage ranges. Exposure times can also vary based on type of photopositive used. Contact IKONICS Imaging for additional exposure times.

Suggested Light Sources & Exposure Times

(all thicknesses)

Light Source	Distance	Exposure Time
5 KW Metal Halide	40 in/100 cm	5-10 sec
26-1K	18 in/45 cm	8-10 units
Letralite	n/a	25 sec

NOTE: Overexposure can cause image not to washout whereas underexposure can cause image to washout prematurely.

IMAGE DEVELOPMENT

1. Position the exposed film in an upright vertical position with the emulsion (dull) side facing outward, clipping the film to a support plate in the washout area.
2. Wash out film with water up to 100°F (49° C). The warmer the water the faster the washout. ImagePro® Red can be processed using the TriggerJet® washout nozzle at 50-80 psi or a pressure washer between 400–1200 psi (28-83 bar).
3. Using either washout method, spray in a slow and even motion until the image area develops clear. When using high pressure, 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 eliminates this potential. High pressure water is recommended for very fine detail and halftones.

DRYING OF MASK

1. Remove excess water from the mask with a blow dryer or pressurized air. This is especially important when drying halftones.

Application Adhesive Method

IKONICS Imaging Application Adhesive is a water-soluble adhesive that can be applied by brushing it **directly on the object to be etched**.

1. Apply adhesive in an even, thin coat using a foam brush or fine bristle paint brush. No thick build-up is required. Avoid build-up at the end of your brush strokes unless they are out of the blasting areas (extra build-up can cause longer blasting time). The water soluble adhesive can be easily cleaned from the brush after use.
2. Dry the adhesive at room temp for 10–12 minutes. Adhesive appears white during application, but dries to a clear finish. Drying can be accelerated by using a conventional blow dryer. For best results, let the coated object sit at room temperature for a few minutes before force drying in order to allow the adhesive to level out. Caution: Over drying will result in loss of tack.

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, 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.

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, the recommended blasting pressure is 25-35 psi on 3 mil and up to 40 psi on 5 mil.

MASK REMOVAL

ImagePro Red 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

Suggested Washout Guidelines

TriggerJet®

- | | |
|-------|---------------|
| 3 mil | 1–2 minutes |
| 5 mil | 1.5–3 minutes |

Pressure Washer

A pressure washer will reduce washout time to under 1 minute in most cases. Washout times by either method will be influenced by the amount of detail in the artwork (longer), amount of film being developed, water temperature and amount of water pressure used. **DO NOT** wash ImagePro® Red film under running water from a faucet.

2. At room temperature, dry the mask for 20-40 minutes; *film should be uniform in color and should not be tacky to the touch*. High humidity will extend drying time to 30-60 minutes.

If available, a dryer such as the PB500 dryer, with heated circulating air will significantly reduce drying time.

3. Apply mask to adhesive after drying. After the adhesive turns clear, there is an approximate two hour window to apply the mask before loss of tack occurs. Once the mask is placed on the adhesive covered area, bonding between the mask and substrate will improve over time. Object(s) can sit overnight or for days without causing tack deterioration.
4. Store adhesive with the cap/spout closed at room temperature or cooler.
5. Dilute the adhesive with 3 parts isopropyl alcohol (rubbing alcohol), if a thinner coat is preferred. This step is recommended when blasting halftones.

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 effect 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 areas with mask-off or masking tape to prevent unwanted etching.

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 the most commonly used.
5. For stagecarving or deep carving use ImagePro Red 5 mil.
6. Recommended blasting temperature is 68°F (20°C) or warmer.

mask can be peeled off 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.

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United States Patent No. 5,629,132
Canadian Patent No. 2,041,521



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