

UltraPro™

SELF ADHESIVE PHOTO RESIST FILM

UltraPro™ Self Adhesive Photo Resist film is an advanced film:



- Ideal for Multi-Level Sandcarving
- No Adhesive Application
- Quick Exposure & Development
- Fast Uniform Blasting Results
- White Light Tolerant
- Detailed Resolution
- Environmentally Safe

UltraPro™ photo resist film is available in 3 and 5 mil thicknesses, and can be purchased in both rolls and cut sheets.

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™ water resistant 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 Positive FX Drafting Film output by a laser printer or professional photocopier. Please note that results may vary based on equipment, toner quality, and media used. A toner enhancement spray, such as UltraBlack, will increase the density of the artwork resulting in a higher quality mask.

FILM EXPOSURE

1. Place the emulsion/toner side of the artwork against the slip-sheet side of the UltraPro™ film.
2. The slip-sheet side has a duller appearance compared to the carrier side.
3. A vacuum frame or compression frame should be used to assure firm contact between the artwork and the UltraPro™ film during exposure.
4. Be sure to have a non-reflective black backing opposite your UV light source to avoid possible reflection causing overexposure.
5. Place the carrier (shiny) side of the UltraPro™ film on top of the non-reflective black backing. Be sure that the artwork is between the light source and the UltraPro™ film.
6. Expose using the suggested exposure times listed.

SLIP SHEET REMOVAL

Remove the slip sheet from the emulsion side of the film (the slip sheet has a duller appearance compared to the shiny carrier sheet). The slip sheet can be

MATERIALS NEEDED

Exposure Device
Washout Equipment
Blast Equipment

SAFETY CONSIDERATIONS

Refer to MSDS for safety information. Wear face and hand protection.

LIGHT SENSITIVE PRODUCT

UltraPro™ film works in normal room lighting conditions for up to ten minutes. No special darkroom or yellow lighting is required for this time period. For longer times, it should be used in yellow or safe-light conditions. General purpose gold or yellow fluorescent, incandescent, red ortho-safelights or yellow bug lights can also be used.

STORAGE

- Store packaged film in a cool, dry area.
- Do not refrigerate.
- Shelf life is indefinite. 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 (negatives) should be right-reading emulsion (toner) side down for back blasting.



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

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 PhotoBrasive Systems for additional exposure times.

**When using a Letralite unit be advised that timers may vary. Double check for accuracy.*

Suggested Light Sources & Exposure Times

Light Source	Distance	Exposure Time	
		3 mil	5 mil
5 KW Metal Halide	40 in/100 cm	5-10 units	10-15 units
26-1KS	18 in/45 cm	10-15 sec	20-25 units
Letralite	n/a	25 sec	30 sec
Quick Image	n/a	10-20 sec	10-20 sec

easily removed from the emulsion by separating it with you fingernail or by using the tape method. To use the tape method, apply a piece of tape to the slip sheet side of the UltraPro™ film, then gently pull apart.

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 (such as a clipboard) in the washout area.
2. Wash out film with water up to 120°F (49° C). Warmer water will improve washout speed. UltraPro™ can be processed by using the TriggerJet® Washout Nozzle with the brass flat spray attachment at 50-80 psi or a pressure washer between 400–1200 psi (28-83 bar).
3. Using either 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.

NOTE: 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 UltraPro™ film under running water from a faucet. Avoid over-washing the film. Extended washout may result in loss of detail and less tack.

SUGGESTED WASHOUT GUIDELINES

TriggerJet®

3 mil 1–2 min.

5 mil 1.5–2.5 min.

Pressure Washer

A pressure washer will reduce washout time to under 1 minute in most cases.

DRYING OF MASK

1. Remove excess water from the mask to accelerate drying times.
2. At room temperature, dry the mask for 20-40 minutes; dry film will be uniform in color. High humidity will extend the drying time. At 120°F (49°C), drying will take approximately 10 minutes.

When storing processed UltraPro™ masks for later use, apply to UltraPro™ Silicon Release Paper. Masks may be stored for up to 8-12 weeks.

A drying chamber, such as the PB 500 (shown) with heated circulating air will significantly reduce drying time.



IMAGE TRANSFER



- Apply the mask to the object in the correct position for blasting. Once the mask is positioned properly, apply pressure to the back of the mask to assure firm contact of the mask to the substrate.
- Avoid wrinkles or large air pockets. Air pockets under the mask may cause lack of adhesion, resulting in blow-offs during blasting. If repositioning is impossible to remove an air bubble, prick it with a pin and tape up the area to avoid blast through.

- A good transfer may result in very small bubbles on the mask surface which will not interfere with either the transfer or the blasting.
- Remove the carrier sheet from the mask by flicking a corner with your fingernail or an X-ACTO® knife. Once removed, press down on the image area with your thumb to assure firm contact. Burnishing is not required.

BLAST

1. Hold the blast nozzle 6-8 inches (15–20 cm) away from the object and perpendicular to its surface.
2. Recommended pressure for a pressure-pot sandblast system ranges from 20-40 psi. A siphon (or suction) sandblast system should not exceed 80 psi (5.5 bar).
3. Grit size should be 180 or finer depending on the image detail. Recommended abrasive media is either pure aluminum oxide or silicon carbide. All manufacturer safety precautions should be closely followed.
4. Recommended blasting temperature is 68°F (20°C) or higher. Blasting in lower temperatures may result in loss of adhesion or blow-offs.
5. Stage carving can be accomplished with UltraPro™ 5 mil by putting separation lines around the area you wish to peel away and reblast.

REMOVE MASK

- Soak the object in water for 10-15 minutes.
- An alternate method is to peel the mask from the substrate. Fine pieces of film can be removed by rolling them off with your finger tips.

Peeling may become more difficult if the mask has been on the object for more than 3 days. See color filling below.

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 loose abrasive from the etched area. The photo resist will protect the areas you do not want to color. A thin paint coating is preferable since excess paint will dry over the top of the photo resist, 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.

