LAM 12
PHOTORESIST FILM

LAM 12 Photoresist Film is a weed-free alternative to vinyl sandblast stencils. LAM 12 images without the time-consuming weeding required of plotter-cut vinyl. Instead, it images easily with ultraviolet light and water. The self-adhesive LAM 12 then adheres securely, providing superior durability to sandblasting. LAM 12 offers:

- Excellent resolution - achieve finer details and sharper images than vinyl
- No weeding
- Deep etching ability
- Superior durability
- Water soluble - remove stencil easily after etching

LAM 12 *comes in 12 mil thickness and is available in rolls.*

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.

SAFETY CONSIDERATIONS
REFER TO SDS for safety information.

MATERIALS NEEDED

Required
Phototool
Exposure Device
Washout Equipment
Blast Equipment

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

LIGHT SENSITIVE PRODUCT
LAM 12 film is a light sensitive product. Although LAM 12 has 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.

STEP ONE: **CREATE PHOTOTOOL**

The highest quality and best value phototools are created by inkjet printing onto specially coated inkjet film. AccuBlack® Inkjet film is recommended. It holds a dense black image, with crisp, clean line edges. Please see AccuBlack® User Guide for imaging instructions.

Alternative Technologies for phototool creation:
- Both stat cameras and image setters offer high quality at a premium price.
- Laser printed vellums can be less expensive but offer marginal performance.

"Black = Blast", LAM12 uses a photopositive process, meaning the black portions of the phototool will ultimately be engraved.

Front Blast is engraving on the front of substrate such as monument stone. Front Blasts require the phototool be created as the engraving will ultimately appear (or right-reading).

Back Blast is engraving on the back side of a transparent substrate like glass. The image will ultimately be viewed through the substate, which means that phototool be printed in the reverse (or its mirror image).

STEP TWO: **EXPOSE**

1. Position phototool and LAM 12 in exposure unit. Place the printed side of the photo tool against the emulsion side of the LAM 12 stencil film in the exposure unit, so that the phototool is between the light source and the LAM 12 Stencil film.
HINT: *LAM 12's emulsion side is duller in appearance than its shiny carrier sheet side.*

2. A UV exposure unit with a vacuum frame should be used to assure firm contact between the artwork and the LAM 12 film during exposure. For information on UV Exposure units such as the Quick Image Exposure unit, please contact IKONICS Imaging.

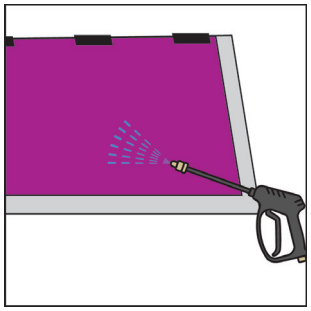
3. Be sure to have a non-reflective black backing opposite your UV light source to avoid possible reflection causing overexposure.
NOTE: *Overexposure can cause the image not to washout; whereas underexposure can cause the entire stencil to washout prematurely.*

SUGGESTED LIGHT SOURCES & EXPOSURE TIMES

Light Source	Distance	Exposure Times 12 mil
5 KW Metal Halide	60 in/142 cm	90 units
26-1KS	18 in/45 cm	40 units

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 the type of photopositive used. Contact IKONICS Imaging for additional exposure information.*

STEP THREE: **IMAGE DEVELOPMENT**



1. Position the exposed stencil in an upright vertical position with the emulsion (dull) side facing outward, clipping the stencil to a support plate in the washout area.

2. Wash out the stencil with water up to 120°F (38° C). The warmer the water the faster the washout. LAM 12 must be processed using a pressure washer between 400–1200 psi (28-83 bar).

3. Spray in a slow and even motion until the image area develops clear. Do not concentrate on one spot as delamination of the 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 will be influenced by the amount of detail in the artwork (high detail = longer), amount of stencil being developed, water temperature and pressure used. **Do not** wash LAM 12 under running water from a faucet.

STEP FOUR: **DRYING**

1. Remove excess water from the stencil with a blow dryer or pressurized air. Blotting the stencil with a lint-free rag is suggested to speed the drying process.

2. At room temperature, hang dry the stencil for 45-60 minutes (drying the stencil on a flat surface is also acceptable). High humidity will extend drying time to 90 minutes.

If available, a drying chamber with heated circulating air will significantly reduce the drying time. At tempatures of 100-160°F (49°- 71°C), drying will take approximately 10-35 minutes. Drying will vary with humidity and air circulation.

STEP FIVE: **IMAGE TRANSFER**

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

• LAM 12 is repositionable. Simply apply the stencil to the substrate by lightly pressing down on the stencil. If repositioning is required remove the stencil and realign.

• Once the stencil is positioned properly, apply firm pressure to the back of the stencil using a plastic burnisher to ensure firm contact of the stencil to the substrate.

• Avoid wrinkles or large air pockets. Air pockets under the stencil may cause lack of adhesion, resulting in blow-offs during blasting.

• A good transfer may still result if very small bubbles are on the stencil surface, which will not interfere with either the transfer or the blasting.

• Remove the carrier sheet from the stencil 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, paying special attention to fine details and small lettering.

STEP SIX: **BLASTING**

1. Hold the blast gun 6-8 inches (15–20 cm) away from the object and perpendicular to its surface.

2. Recommended maximum pressure for a pressure-pot sandblast system is 60-70 psi (4.5 bar). A siphon (or suction) sandblast system should not exceed 80 psi (5.5 bar).

3. Grit size should be 60 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.

STEP SEVEN: **REMOVE STENCIL**

Peel the stencil from the substrate. Fine pieces of stencil can be removed by rolling them off with your finger tips.