SUPPLEMENTAL GUIDE FOR RAPIDMASK HD (rev.1--11/04)

HALFTONE & FINE DETAILED IMAGES
(up to 65 lpi halftone)

GENERAL OVERVIEW

There are several important things to keep in mind before starting to abrasive etch halftones and/or fine line images. Please read these guidelines before proceeding.

- Use **220 grit abrasive for etching halftones greater than 40 lpi.** The reason is that the particle size of the grit needs to be small enough to etch between dots and/or fine lines.
- Etching fine details requires different process methods and thinking to ensure success.
- First-time halftone users should practice before committing to etching on expensive substrates. Start at a 35 lpi halftone level and work your way up gradually as you become comfortable.
- Don't be in a hurry. **Etching fine details requires patience and care.**
- Key areas to watch are the overall size of your image, artwork preparation, work area cleanliness, exposure process, etching equipment maintenance, grit size, and most of all - etching technique.
- Always use a **smooth, rigid squeegee** for film application to ensure good adhesion.
- You should etch your fine detailed images within 24 to 48 hours of exposure to ensure good performance when etching. Held longer, the imaged areas can begin to deteriorate.
- **Note: Refrigeration extends this timeframe up to 10 days.**

ARTWORK

- Use a good graphics software package, such as **CorelDraw with HalfWiz** for quick and easy half-toning. Adobe Photoshop can also be used.
- The technical staff at PhotoBrasive Systems can help get you started using CorelDraw & HalfWiz..
- Pay close attention to your **grayscale settings** in order to achieve the best etched results. Typically, you should stay between the **15% - 85% range** to properly balance black and white contrasts. *CorelDraw with HalfWiz will do this for you*.
- Use PhotoBrasive's AccuArt2 (inkjet printers only) or Positive FX (Laser printers) to produce good quality contrasting halftone images. Make a "proof" print on plain paper to be sure you have a good dot pattern for etching.

LEVEL OF DETAIL

- When etching halftones, etch depth is limited depending on the lpi setting. **Rule of thumb is that etch depth should be no greater than the image is wide.** The risk of blows-offs greatly increases if going beyond this limit.
- The more detail (higher lpi), the more time it will take for the abrasive to penetrate the areas between dots or fine lines. Rushing the process will result in over-etching.
- **The finer the detail, the more critical these guidelines become.**

ENVIRONMENT

- Fine detail etching requires care and cleanliness to minimize dust and dirt particles, particularly during film exposure and application.
- Small particles entrapped between the artwork and RapidMask film can result in areas not being etched or blow-offs depending on where the dirt particles are located.
- Static generated when separating the Slip Sheet can attract dirt toward the RapidMask film. The finer the image detail, the cleaner your work area should be.
- While RapidMask can be used in white light for several hours (see user guide info), it is highly recommended that Exposure and film Application be done in a safe-light setting to preserve film color and optimal performance. Contact your PhotoBrasive Representative if you need more information.

Please contact your PhotoBrasive Systems' representative if you require support at 800.643.1037.

ETCHING EQUIPMENT

- **Pressure pot systems** are recommended for detailed work because there is more etching control and uniform air/abrasive mixture and flow.
- It's important that the etching units be properly maintained and periodically cleaned. Be sure to **thoroughly clean** the unit when switching from a more coarse abrasive to 220 abrasive. Trace amounts of larger particles can cause blow-outs and/or loss of detail during etching. Vacuum all lines and hoppers before adding new 220 abrasive.
- Make sure abrasive is fresh and cutting well. Silicon carbide is recommended over aluminum oxide because it lasts much longer (can be used many times over) and retains a sharp cutting edge.
- Check your nozzle for wear; it should be between 3/32" and 1/8" wide.
- It's helpful to have good cabinet **back lighting** when etching halftones in glass to aid in seeing the results while etching.

EXPOSURE

- With higher levels of detail, proper exposure is important. Under-exposing RapidMask makes it difficult to remove during etching. Over-exposure (>50%) can cause undercutting of the image; image distortion; and reduce etching latitude, especially if poor quality artwork is used.
- Follow the "exposure setup up procedure" in the RapidMask process guide to ensure you are getting the right level of exposure.
- Recommended exposure guidelines for RapidMask HD are:
  - **Letralite – 1 – 2 minutes**
  - **1 K -- 30 – 70 units**
  - **5 K -- 10 – 50 units**

APPLICATION

- For halftones, it's important to minimize air bubbles when applying the film to the substrate. The "wet application method" is recommended for best results. This method is described in the RapidMask HD User Guide.
- Be sure to squeegee the film well to eliminate air bubbles and ensure good adhesion.
- Very tiny bubbles that might appear, but you cannot feel, will smooth out during blasting. See etching technique below.
- Allowing the RapidMask to dry for about 15 minutes before blasting optimizes adhesion and provides greater etching latitude.

ETCHING TECHNIQUE (BLASTING)

It's important to understand that etching fine details takes time. The abrasive has to get in between the dots, so it just takes longer. That's why using 220 abrasive is so important; the abrasive fits between these dots with greater ease. Don't be in a hurry. This is NOT etching as usual.

- Start by holding nozzle 6 to 8 inches away. Lightly blast the entire surface in a back and forth motion to help remove small bubbles. The image you are etching become more enhanced after doing this.
- After this, keep nozzle 4" to 6" distance for most of the etching. Typical halftone or fine line patterns have light and dark/dense areas. **Do not be tempted to bring the nozzle in close to the work!!** Concentrate on the dark (blue) areas first - but always keep the nozzle moving. Focus less on the lighter (green) areas until you start to see the blue areas get lighter. This means the exposed RapidMask is beginning to breakdown. Now you can move to the other areas of the image and work the entire surface until all the blue color is removed.
- Once mask breakthrough has occurred, there's no need to concentrate in these areas. Move on until everything has opened up in the "blue" exposed areas.
- Keep the artwork nearby to compare with your etched pattern - it helps to know where to focus.
- **Stop often to check your etched image.** You can always go back and etch more. The film has plenty of latitude, but trying to hurry the process along can result in over-etching the image.
- **Lighting is important.** Back lighting is best, or light at an angle to enhance the contrast of the image being etched.
- Once you have opened up all the areas that were exposed, go over the entire image lightly to generate an even etch.