Photoplate lithography

Artwork:

Various kinds of artwork prepared on clear acetate or film are suitable for use when preparing photolithographic plates, for example:

- **Hand drawn artwork** prepared on clear draughting film; any material pigmented with **black** pigment is suitable for use, such as: graphite pencil, oil pastel, black watercolour, black acrylic or gouache, and charcoal pencil.
- Image printed from an **inkjet printer** in **black** ink onto inkjet transparency film.
- Image printed from a **laser jet printer** in **black** ink onto laser jet transparency film.
- **Photocopy** onto clear acetate film.

The final printed impression will print as seen on the original artwork.

Prepare equipment for plate-making

Prior to working it is important to prepare a clean area in the wash out room for developing the plate.

1. Place board over graining sink.
2. Put clean developing trays on board as shown; place perspex sheet on top of tray.
3. Cover area next to sink with a clean sheet of newsprint.
4. Pour developing solution into a container, and put clean cotton wool in a separate container next to the sink.
5. Turn off the light and switch on the red ‘safe’ light.

Preparing the artwork for exposure

1. Thoroughly **clean the exposure unit glass** with glass cleaner.
2. In subdued or ‘safe’ lighting, **attach the artwork to the plate** using **‘Scotch Tape’** ensuring that the drawn side of the film is in contact with the blue/green side of the photo-plate (i.e. ‘emulsion to emulsion’).
3. Keeping the plate protected from light, place **face down** in the exposure unit on top of the **Cadfoil**. Close the lid and switch on vacuum; expose the plate for **12 light units on half power**.
4. **Remove the artwork from the plate**, and take to the wash out room for developing.
5. Place plate blue/green ‘face’ side up on perspex sheet.
6. Wearing Blue Nitrile Gloves, load cotton wood with developing solution and gently sweep over plate surface. The image will start to appear – do not rub the plate.

7. When image is fully developed wash off developer with plenty of water.

Disposal of the developer

- Developer remaining in the container can be poured back into the bottle.
- Developer in the tray should be flushed away with plenty of water.
- If not needed for another plate, cotton wool can be disposed of.

Gumming the developed plate

1. Blot both sides of the plate with newsprint.

2. Dry the plate as shown using a hot air dryer.


4. Pour about 1 teaspoon of gum arabic onto the plate surface and using a very clean sponge gently wipe a very thin layer over the whole plate.

5. Buff down with a clean rag and dry with a hot air dryer.

Prepare an area for printing

You will need:

- A bucket of clean water.
- A wet rag.
- A dry rag.
- Lithography damping cloths (in blue lithography box).
- Roller and ink – rolled out to a thin layer.
- Turps.

Inking the plate

1. Wipe the gum off the plate using the wet rag.

2. Put a little ink onto a rag with some turps to thin the ink and rub over the surface of the plate.
3. Wipe over the plate with the wet rag.

4. Using the lithography damping cloths, gently dampen the whole plate.

5. Roll with ink.

6. Damp and ink the plate alternately ensuring that the plate is not too dry or too wet prior to inking with the roller.

7. Dry the plate with cool air.

Printing the plate

The photo-litho plate is thin and additional packing may be needed on the etching press – ask the technician if you are unsure.

1. Place plastic registration sheet on press as shown.

2. Put inked plate face up on metal sheet.

3. Place dampened paper over plate, cover with one sheet of tissue and run through press.

Things to watch for:

- Ensure that rags used for cleaning the plate are not mixed with damping cloths used for damping the plate.
- When inking if the plate becomes dry the ink will stick to the whole plate.
- The plate surface will scratch very easily so avoid any abrasion.

To store the plate after printing

1. Clean all traces of ink from the plate with turps.

2. Wash off residue with a wet rag.

3. Blot and dry the plate with dryer.

4. Coat the plate with a thin even layer of Gum Arabic.

5. Dry the plate and protect with paper during storage.
FAQ

What is a photoplate lithography?
The plate used for photo-lithography is a thin sheet of anodised aluminium that has been coated with a layer of photo-sensitive emulsion.

How does the plate work?
Exposure to ultra-violet light can be used to create an image in the coating on the plate. This is done by selectively masking areas of the plate prior to exposure with a positive black image drawn, or printed, onto film. When the plate is developed, an image is revealed that can be inked and printed.

What kind of imagery works best?
Photo-lithographic plates will record a lot of detail and print a broad tonal range – from solid black to very pale grey. Any kind of hand drawn image, photographic work, or text can be printed.

Does my image need a half-tone screen?
No. Work that is drawn on film is contacted directly onto the plate surface – this creates a ‘continuous tone’ or ‘screenless’ image.

Can I use laser jet or ink jet prints to make the plate?
Yes. These need to be printed in black ink onto the correct acetate for the printer that you are using.

Do I need to reverse my image/text?
No – the image will be reversed during exposure and then reversed back during printing.

Are the materials hazardous?
Nitrile gloves must be worn when developing the plate.