

Intaglio

Photopolymer Gravure



'Knowledge' by Jane Anne Hunter

Further Information

Good walkthrough example of exposing and washing out an intaglio plate: <http://www.youtube.com/watch?v=ISxfDW21JIo>

Dan Welden Inking and printing a Solarplate: <https://www.youtube.com/watch?v=eWW-ZILSN6M>

Examples of Dan Weldens use of solarplates: <http://www.danwelden.com/prints-1.html>

Introduction

Photopolymer printmaking is a revolutionary etching process as plates no longer need to be bitten in acid and images can be created from a wide variety of sources, from hand-drawn artwork or using photographic and digital techniques.

The plates can be used for both intaglio and relief processes. Solarplate (or photopolymer gravure) uses water-washable photopolymer plates, producing results similar to 19th century process of photogravure without exposure to acids and chemicals, By using a Mark resist film or drawing directly onto acetate it is also possible to produce autographic (hand-drawn) images.

The photopolymer plate's adaption by artists and printmakers is due in particular to Dan Welden, who realised the potential for their use in producing photographic images. After many years developing and refining the process he re-branded the technique 'Solar-Plate'.

The plates required for photopolymer gravure in the WSA Printmaking Workshop, can be purchased through the Workshop Stores.

PKM95 Steel Backed Polymer Plate 0.95mm thick.
Available in A5, A4, A3 and A2 sizes

Artwork

Artwork for Intaglio plates can be produced either by hand (autographic) or using photographic/digital imagery.

Autographic Positives

Tru Grain is a textured drafting film that holds tone. By working directly on to the film, it allows the production of subtle marks and washes. Lithographic Crayons and pencils are available in varying degrees of hardness, but you can also experiment with regular crayons and markers.

The crayons can also be dissolved with water to create washes, or a good quality acrylic based drawing ink can be used. Tusche can be diluted with either water or solvents to create interesting washes, acrylics also work well, and dry faster. Wet materials can be used to produce a wide range of textures.

Photographic Positives

Photographic images can be printed or photocopied onto acetate as a cheap and easy method of creating positives. However, as a cheap option this may produce poor results. The density of the positive or negative image is crucial to the making of a high quality print. Printing the image onto acetate using creative services will provide a denser black that is necessary to produce a good quality plate to work from.

There are 3 steps to preparing your digital image using Photoshop:

01. Resize your image to the desired size.

You should work with high quality digital files that are at least 240ppi at the desired output size.

02. Convert your image to grayscale.

The simplest option is to go Menu Bar > Image > Mode > Greyscale, but may not always produce the best value transitions between information in your image.

03. Adjust the Curves of your image as needed.

The tendency for these plates is to lose information in the areas lighter than 20% gray and darker than 80% gray. If you do not compensate for this problem, your prints may have too much contrast and information loss in the light and dark areas of your image.

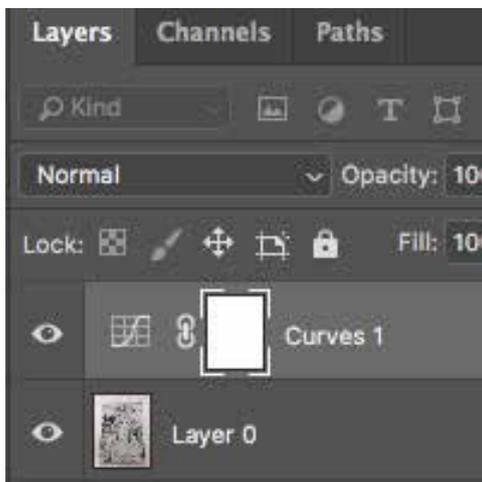
You can easily adjust your image in Photoshop using the 'Curves' dialogue box to adjust for this problem and produce prints with a full and even tonal scale.

INPUT/OUTPUT 5/10, 20/31, 50/55, 70/68, 95/92

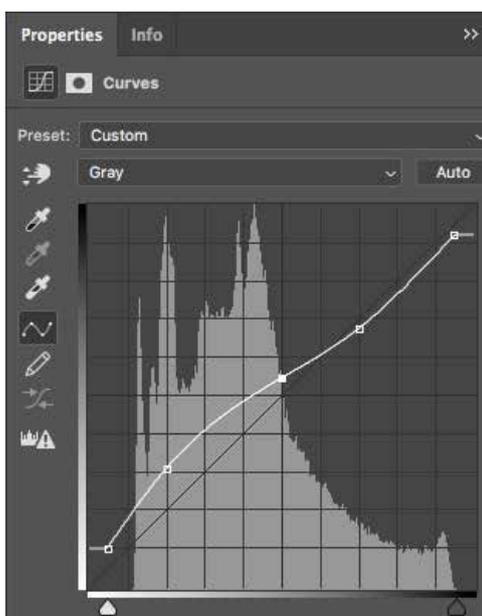
The settings illustrated act as a basic guide, but you may wish to produce test plates with different settings that work best for your image.

The following video demonstrates the procedure for making detailed curve adjustments for photogravure plates.

<https://youtu.be/gZAQtm4KMIQ>



CURVES ADJUSTMENT LAYER



BASIC CURVES ADJUSTMENT

Exposing The Plate

Intaglio plates require a double exposure, firstly the plate is exposed to an aquatint screen. This is similar to producing an aquatint in traditional intaglio printing, then the plate is exposed to the image.



Carefully placing the photopolymer plate for the first exposure.



Exposing the Aquatint screen.



Placing the plate on the artwork for the 2nd exposure.

01. Cut your plate to size using a sharp and nick-free blade. A metal shear may also be used. Once your plate is cut ensure the edges are smooth and flat, use a file if necessary,
02. Ensure the exposure unit is switched on and warmed up and the glass is clean from dirt and dust. (refer to instructions on the wall, by the side of the unit).
03. Carefully lift up the lid of the machine and check the glass is free from dirt or dust. Place the Aquatint Screen on the glass.
04. Carefully place the photopolymer plate, gelatin side down, onto the Aquatint Screen. Place a piece of cartridge paper on top of the plate and close and latch the lid.
05. Make sure the light unit setting is on 140 and turn on the vacuum. Once the vacuum is fully engaged push the green start button and let the timer count down to zero.
06. Once the timer hits zero, the UV light will shut off and it is now safe to turn off the vacuum. Once the vacuum is off, unlatch the lid and let the rubber 'exhale' before lifting up the lid.
07. Carefully remove the plate - the Aquatint is fragile and can be easily scratched. Always handle it with care, especially when placing and lifting the plate, Do Not Drag it!!
08. Roll up the Aquatint Screen and store it in its tube again immediately.
09. Place the image acetate onto the glass (right side reading up).
10. Put the photopolymer plate, gelatin side down, on top of the image acetate. Place a piece of cartridge paper on top of the plate and close and latch the lid.
11. The light unit setting should be changed to 80. Turn on the vacuum. Once the vacuum is fully engaged push the green start button
12. Once the timer hits zero, the UV light will shut off and it is now safe to turn off the vacuum. Once the vacuum is off, unlatch the lid and let the rubber 'exhale' before lifting up the lid.

Intaglio

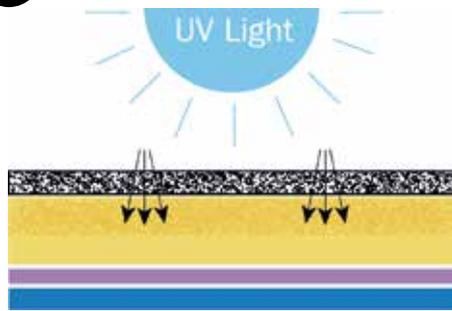
Plate-making Process

1 Contact with aquatint screen



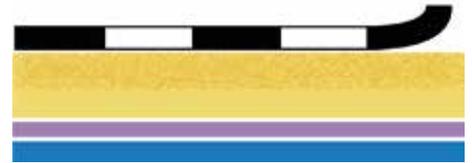
Remove the protective cover film and place the undeveloped plate over the aquatint screen.

2 1st exposure



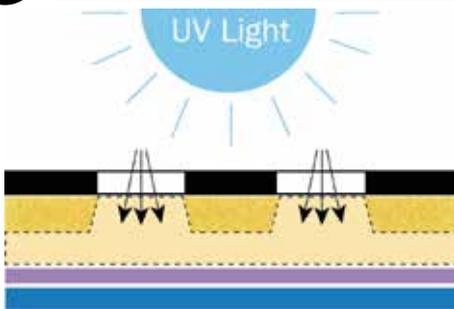
Expose the plate through the aquatint screen to UV light for 140 light units.

3 Contact with positive film



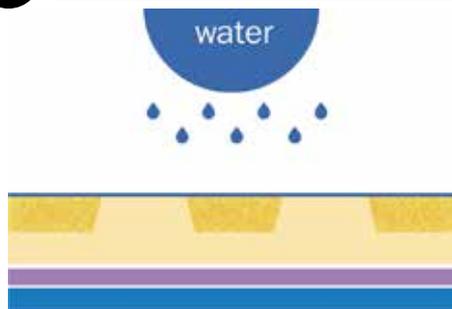
Remove the aquatint screen and place the image acetate in the exposure unit with the plate on top.

4 2nd exposure



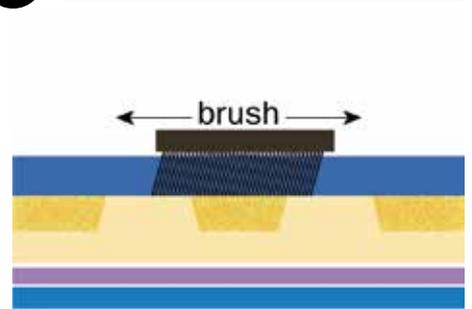
Expose the plate for a 2nd time through the positive film for the correct exposure time for artwork.

5 Developing



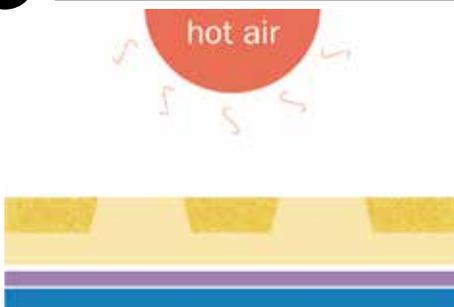
Run the exposed plate under cold water for 1 minute.

6 Washout



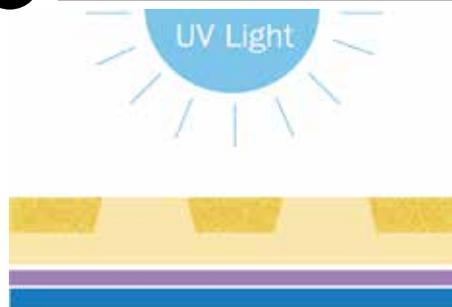
Submerge the plate in cold water and gently agitate with a soft brush for 1 minute before giving it a final rinse.

7 Drying



Absorb any excess water with blotting paper and dry with a hairdryer for 10 minutes, until there is no tackiness to the surface.

8 Post exposure



Expose the developed plate after drying to UV light for 400 light units to fully cure the polymer.

Clean up

Clean away any mess or spills. Dry and put away all utensils and trays. Throw away any rubbish in the bins provided.

Health and Safety

Always ensure you are wearing blue nitrile gloves and safety glasses while developing the plate.

You will need

- Nitrile Gloves
- Water Tray
- Soft Paintbrush
- Chamois/Blotting Paper
- Hairdryer
- French Chalk
- 400 - 600 grit sandpaper



Gently brushing the plate surface in the water bath.



Blotting the plate to remove excess water.



Dry the plate with a hairdrier for 5 mins

Developing The Plate

This is the most crucial part of creating the plate, care should be taken and times for each step observed to avoid over or under developing the plate.

Before you begin developing the plate ensure you have all the tools and materials ready and laid out.

01. Firstly, put on nitrile gloves and safety glasses, then remove the plate from the glass.
02. Run the plate, gelatine side up under water for one minute, ensuring the water flows evenly over the entire surface of the plate.
03. Place the plate in the designated photopolymer water tray with tepid water, gently agitate the tray and very gently brush over the image area with the designated brush for one minute.
04. Run the plate under water again for one minute. Ensure the water flows over the entire face of the plate by rocking and turning it occasionally.
05. Quickly and carefully blot the developed plate with a chamois or blotting paper, removing as much of the surface water as possible.
06. Use a hair dryer to dry the plate for 4-5 minutes. Firstly on the gelatin side until it is dry and then on the rear to remove any remaining water.
07. Apply French Chalk to the plate and gently rub in, shaking off any excess.
08. Expose the plate for a further 400 Light Units to fully cure the photopolymer.
09. Lightly polish the plate edges with 400- 600 grit sandpaper.

The plate is now ready to print.

You will need

- Etching Ink and modifiers
- Card Offcuts
- Scrim
- Phonebook pages
- Printing paper
- Newsprint

Health and Safety

Improper use of the press can cause serious injury and damage the equipment.

Always ask the technician to set the press for you.

Printing

For best results The Photopolymer plates should be printed on the etching press.

01. Tear your paper to size, and soak for at least 20 minutes before printing. Asian papers should not be soaked.
02. Prepare your ink, Black ink can be mixed with a very small amount of easy wipe. Colour inks will need to be mixed with easy wipe and a small amount of etching extender.
03. Card on your ink, and skim off the excess. Wipe with a dirty tarlatan that is held in a tight ball. Sweep the tarlatan across the plate from different directions, Be careful not to apply too much pressure and over-wipe the plate.
04. Once there are no streaks of ink remaining on the plate, finish wiping your plate with a phone book page to remove excess plate tone. Wipe edges carefully and thoroughly.
05. Blot your paper, position your paper and a sheet of newsprint and send through the press.
06. Remove your print and plate and remember to clean the bed of the press with Mr Muscle after pulling each print.

Clean Up

07. Put on a pair of (Black) Cleaning Gloves.
08. Clean the plate, in the fume cupboard with a little white spirit and dry with paper towel, if the plate is to be stored for a long period of time smear the surface with a little baby oil and wrap in newsprint.
09. Scrape the excess ink off the slab with your ink knife and wipe it onto phone book pages.
10. Pour a small amount of vegetable oil onto the slab. With a dirty rag, wipe down the ink knives. Ensure you remove all the ink. Give them a final wipe with a clean rag.
11. Use the same rag to wipe up the oil and ink on the slab and then put it in the appropriate rag bin. (Red - oily rags still in use or Yellow - used rags/ink waste for disposal).
12. Use Mr Muscle and a blue J cloth to clean up the oil and ink residue on the glass slab. Also clean down the press bed and tympan with Mr Muscle.
13. Put everything back in its place. Newsprint, inks, bottles, rollers etc!

Thank you for leaving the workshop clean and tidy for the next person!