

Tech Tip #2 - *Pinhole-Free Plates*

MacDermid photopolymer materials are made under stringent quality controls. Surface defects are almost always due to causes other than material manufacture. This Tech Tip discusses solutions to common causes of “pinhole-type” defects.

Storage and Handling

Dust or lint trapped between the negative and the plate surface can cause tiny depressions (pinholes) in the plate surface. During exposure, UV light will cure the photopolymer in the shape of the depression and it will appear as a defect when printed.

Dirt, dust or lint trapped between the vacuum drawdown sheet and the negative will block the UV light and cause voids, misshapen dots, etc. in image areas. There are many causes of contamination, including airborne contamination (see Ventilation, below), faulty opaquing, poor housekeeping, etc. Following are some tips to prevent problems:

- Do not raise dust when cleaning storage and platemaking area floors.
- Store negatives properly. Many platemakers prefer sorting them flat in film cabinets.
- Use opaquing materials that do not flake.
- Opaque only on the base side of the negative film.
- Before positioning the negative on the plate, clean both sides with a commercial film cleaner and non-abrasive, lint-free wipes. Clean the base side of the film first and the emulsion side second.
- Wipe the film with a commercial tack cloth to remove any dust left on the negative.
- After positioning the negative, wipe or brush the surface with an anti-static cloth or brush.
- Clean the bleeder strips and vacuum drawdown sheet before installing over the plate and negative.

Ventilation

Plateroom ventilation systems can be a major source of the airborne contamination that causes pinhole defects. To prevent this, we recommend the following:

- It is important that makeup air be supplied to the platemaking area at about 10% above the exhaust rate.
- Incoming air should be filtered. Simple furnace-type filters will help, but better results will be obtained with high-efficiency, absorber-type electronic filters. All filters require regular servicing, cleaning and replacement.
- Plateroom exhaust systems should include floor-level intakes located near the exposure unit and processor to help keep the surface of the exposure unit clean.

Humidity

Low humidity in the platemaking area can cause pinholes due to static electricity attracting foreign particles. A static charge can be produced by routine handling of photopolymer sheet and film materials. The static charge will attract dust particles. This can be especially troublesome during the dry winter months.

Maintaining the relative humidity of the platemaking area at a minimum of 40% is an effective solution to static electricity problems. Anti-static products such as brushes, film cleaners and ionizing air blowers can help solve specific problems.

Equipment Maintenance

In addition to the previous recommendations, regularly scheduled equipment maintenance is important in minimizing dust contamination. The following schedule is satisfactory for most platemaking operations:

DAILY

Replace vacuum drawdown sheet. Clean exposure unit bed.

WEEKLY

Replace bleeder strips.

MONTHLY

Clean UV lamps

Clean exposure unit blowers

To help you set up a scheduled maintenance program, we have included a Maintenance Control Chart on page 3

Maintenance Control Chart

Schedule:	From:						To:					
	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
Cleaned Filters												
Cleaned UV Lamps												
Cleaned Blowers												