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INSTRUCTION BULLETIN

Mold Release Techniques

The scope of this paper will concern the releasing of epoxy and polyurethane liquid systems from various surfaces. Most commonly, these surfaces are either porous or non-porous types. Special releases and techniques are required for each type surface. In addition, there are special products designed for multiple releases from non-porous surfaces.

POROUS SURFACES

The most commonly used materials for tooling patterns are plaster and wood. Both of these materials present problems because they are hygroscopic, i.e., they absorb moisture from the air. This moisture, in turn, usually creates problems with epoxy and urethane systems in the form of improper cure and surface porosity.

In most cases, wood and plaster can be prepared and released the same way:

- 1. Oven dry the plaster pattern according to manufacturers recommendations.
- 2. Apply 3 to 5 coats of a good quality sanding sealer.
- 3. Apply three coats of PA0801 paste wax - buff between each coat.
- 4. Spray or brush on a coating of PVC film. PVA (PA0810) can be used, but PVC is a tougher coating. PVC should be used if the plaster will be heat cured. These films serve as moisture barriers, but are not necessarily good releases.
- 5. A light coat of PA0801 paste wax can be applied over the PVC or PVA coating for an easier release.

When the epoxy or urethane part is removed from the wood or plaster pattern, the PVC or PVA usually sticks to the part. Water will remove the PVA, and a mild solvent the PVC.

NON-POROUS SURFACES

Plastic and metal are two common surfaces that epoxies and urethanes are cured against. Silicone based release agents provide the best release, and are recommended unless silicone contamination is a problem. Also, it is sometimes difficult to brush surface coats on a silicone released surface. The low surface tension of the silicone causes the resin to bead, instead of flowing smoothly on the surface.

For most applications:

1. Clean metal or plastic, then spray or wipe with PA0828 silicone mold release. Several light coats are better than one heavy coat.
2. Let air dry to allow the solvents to flash off.

For surface coat applications:

1. Clean metal or plastic surface. Apply 3 to 4 coats of PA0801 paste wax - buff between each coat.

Spray a coating of PA0810 PVA release agent - let dry. This combination will not release as easily as a silicone based release agent, but it will let the surface coat spread without beading up.

MULTIPLE RELEASES FROM NON-POROUS SURFACES

For releasing urethanes from non-porous surfaces, See Product Bulletin for PA0868 release agent.