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Technical Guide

Focus On: The Importance of Clean Molds

The importance of proper mold cleaning procedures is a topic that is often overlooked in discussion and practice. All too often, mold cleaning is rushed and not totally effective in removing all residues from the mold surface. In the case of semi-permanent mold releases, poor cleaning prior to application can result in major product failures, poor surface appearance, or lower production from each release preparation.

Beginning

Before testing a new mold release; converting from one release product to a different one; or returning a mold to production after polishing; it is critical to assure that the mold surface is clean. In addition, new molds surfaces should also be cleaned before application of sealer or release products. This includes new metal molds which may contain residues of cutting oils or plating chemicals. A clean mold surface is essential for all sealers and release products, allowing them to wet the mold surface evenly and completely when applied. For semipermanent mold release products, a clean mold surface provides the site for sealers and releases to cross-link and bond to the mold surface. Without this clean surface, the semi-permanent release will be sacrificed during the first de-molding(s).

intention here is to keep molding debris from building up and allowing production to run longer before the mold needs to be removed for refinishing. Remember that bits of residue from molding are like magnets for more buildup. A quick cleaning while in process can really improve productivity.



A mold with buildup from too much mold release



A mold with heavy styrene buildup in the non-skid areas.

The Importance of Cleaning



Mold Cleaning vs. Mold Stripping

To prepare a mold for an initial application of mold sealer or release, the mold should be stripped clean of all previously used releases, compounds, and polishes as well as any dust or dirt. By comparison, the goal of cleaning the mold while in process, is generally quicker and more superficial, since the

It is easier to correctly and completely strip a mold if you know what is on the mold surface. With or without this information, you may find that more than one cleaner or stripper is needed to get the job done. Many people are surprised to learn that some residue, like polish, may be easier to remove with water than solvent. When in doubt about where to begin with cleaning, start by washing the mold with warm water containing two drops of liquid soap / liter. After this, rinse and dry the mold and move on to a quick flashing solvent cleaner like CX-500. For molds with heavy buildup of paste wax, or styrene residue, specialty strippers may be required (Refer to Table 1)

Appearance can be deceiving

Don't simply assume that because a mold surface looks clean, that it is clean. Many polishes and cleaners may leave a mold looking clean and shiny, but they may have used waxes, oils, or silicone to fill tiny scratches and achieve this "clean look".

One indication that a mold is really clean is to employ a simple "tape test". To do this, you should use a good quality paper masking tape, applying several strips in various areas of the mold, and rubbing over each strip with equal pressure as you apply. Try to use the same tape for your all of your tape tests, as there can be considerable variability in various brands of tape. Once the tape strips are in place, pull them off of the mold surface. A clean mold should yield a feeling of consistent resistance in removal and you should hear some noise as the tape rips free from the mold surface. If the tape in one area releases easier, it indicates that additional cleaning is required. If all of the tape strips release with little resistance, then the entire mold needs more cleaning.

In some cases even the tape test fails to uncover some surface residues, so another good double check is to drop a few beads of water or acetone on what you believe is a clean mold. If this beads up tightly like rain on a new umbrella or rain jacket, rather than immediately making a little pool,



Water droplets that flatten out on the mold surface rather than forming a tight bead, indicate a cleaner surface.

Cleaning Rules

1. Always use clean cotton cloths for cleaning - polyesters can dissolve in cleaning solvents and leave behind residue. Non-gloss or textured molds can use stiff natural bristle brushes to work the cleaner over the mold surface if desired.
2. Saturate your cleaning cloth with cleaner and rub liberally over the mold surface in a circular motion. This is the time to use lots of product and some muscle.

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3. Quick flashing solvent cleaners, like CX-500, should be wiped off before drying. Scrub the cleaner on with one cloth, and off with a second, clean dry cloth. Remember to turn or change cloths as needed. Wipe off while wet, or you will simply spread the dirt to a new area on the mold!
4. Mold strippers like CW-10NC or CX-525 often require allowing the mold to sit for 15 minutes or more to permit the stripper to work. After scrubbing over the mold surface with stripper, covering the mold with cotton cloths that have been saturated with stripper will minimize evaporation and speed the stripping process.



Always use gloves! Covering molds can slow evaporation

5. Always read and follow the safety instructions for all chemical products. Appropriate protective gloves and protective eyewear should always be used when handling any chemicals.

Table 1

| How to Clean/Strip Molds | | | |
|--|-------------------------------|----------------------|--------|
| | Start | | Finish |
| New Mold | warm water wash | CX-500 | |
| Compounded | warm water wash | CX-500 | |
| Converting from Semi-Permanent | Check compatibility or CX-500 | | |
| Converting from Paste wax | CW-10NC | warm water wash | CX-500 |
| Water-based Semi-Permanent Also removes many compounds | Scrub with WCX | liberally water wash | repeat |

NOTE: Molds that have a heavy build-up of wax may require repeat cleaning

