



## **TROUBLE SHOOTING MOLD RELEASE APPLICATIONS – URETHANE**

### **Problem: Tool Cleanliness**

Excessive build up of release agent and/or molded urethane that negatively affects the tool life

#### **Solutions:**

1. If using a sacrificial, evaluate a semi-permanent release agent; if using a semi-permanent, make sure it is not over-applied and has cured properly
2. Identify source of build up: release agent or urethane/urethane residuals. Is the residue soft or hard. Is the residue discolored.
3. Apply less material by adjusting fluid pressure or needle travel on spray gun.

### **Problem: Poor Semi-Permanency**

Inability to achieve proper number of releases

#### **Solutions:**

1. Ensure the tool surface is properly cleaned.
2. Confirm that the tool has been properly sprayed
  - a. Base Coating
  - b. Touch Up
3. Ensure tool temperature is adequate to properly cure the release agent. Semi permanent release agents need at least 180F for maximum effectiveness.
4. Ensure another mold release has not been applied. For example, sacrificial mold release will prevent semi-permanent releases from bonding to the tool.

### **Problem: Difficult Release**

Evidenced by tearing of the molded part or urethane sticking in the mold

#### **Solutions:**

1. Determine if problem is due to poor mechanical release or poor chemical release. Mechanical release is usually evidenced by tearing of the part. Chemical release issues usually result in sticking to the tool surface.
2. Ensure the release agent is applied uniformly
3. Make certain the temperature is not too high or too low. This is especially important when dealing with sacrificial release agents containing wax blends. If the temperature is not appropriate you may experience poor release or sticking.

### **Problem: Pinholes, voids, porosity**

Appear as indentations on the surface of the part. May be more prevalent at the pour area. Pinholes can appear on integral skin parts when painted or unpainted.

#### **Solutions:**

1. Ensure the mold release is dry by extending the dry time or applying less mold release.

2. Ensure the mold release is applied uniformly on the tool. Apply by wiping or if spraying follow with wiping.
3. Inadequate flow of urethane inside the part may also cause voiding and under-fills/non-fills.
  - a. Check temperature. High or low temps may affect urethane cure and subsequent filling of the mold. Temperature also plays a role in allowing for adequate skin formation in an integral skin application. If the skin is too thin, pinholes may be predominant on certain areas of the part.

**Problem: Skinning of the part surface**

Can be caused by a variety of reasons.

**Solutions:**

1. Ensure the mold temperature is not too high or too low preventing a complete cure of the part.
2. Skinning of flexible foams is usually a result of chemical reaction between the foam and mold release agent. If release is adequate, try applying less in order to minimize reaction.

**Problem: Gloss increase over time**

Usually caused by mold release build up on tool

**Solutions:**

1. Wipe the tool out with a clean towel to remove excess mold release.
2. It may be necessary to clean with a product such as Frankleen #1. Most cleaners leave a residue so finish with wiping with water or mold release.

**Problem: Sticking in the gate area**

**Solutions:**

1. Apply a thorough basecoat in the gate area and allow to cure for one dry cycle.
2. When touching up the tool, apply to the gate areas first for maximum cure time.