



## ***CUSTOMER SERVICES BULLETIN***

### ***HOW TO MAKE A SILICONE MOLD***

1. **Measure Components**

Measure the RTV silicone Base into a disposable container that is approximately four times the volume of the rubber. Accurately add the exact amount of Activator required.

2. **Mix Thoroughly**

Thoroughly stir the mixture with a flat blade spatula or with mechanical mixing. Be sure to scrape the sides and bottom of the container to ensure the correct ratio of Base to Activator. Stir slowly until a uniform color is achieved without streaks.

3. **De-airate Mixture**

Place the mixed RTV silicone rubber into a de-airation chamber capable of 28 to 29 inches of mercury vacuum. Allow the rubber to expand and collapse back to its original volume. Maintain vacuum for an additional one to two minutes. Release vacuum and remove the container from the de-airation chamber.

4. **Pour Over Released Pattern**

The part to be duplicated should be coated with a mold release agent (MR-15 is recommended) to ensure easy separation. The part should be placed into a box that will contain the silicone rubber while it is a liquid. Slowly pour the mixed silicone rubber over the released pattern being careful to avoid the formation of air bubbles or entrapped air. Allow the rubber to flow around the part to a minimum depth of 3/8 to 1/2 inch.

5. **Allow to Cure**

Allow the rubber to vulcanize for 16 to 18 hours at room temperature (70°F). Lower temperatures and/or low humidity will cause the cure-time to lengthen; conversely, higher temperatures and/or high humidity will cause the cure-time to shorten.

6. **De-mold**

Partially disassemble the mold box and remove the cured block of RTV silicone rubber. Carefully flex the mold to remove the original part.

7. **Completed Mold with Pattern**

The silicone mold is ready to be used with appropriate casting materials to duplicate the original pattern.

## HELPFUL INFORMATION

**THE IMPORTANCE OF THOROUGH MIXING OF BASE AND ACTIVATOR CANNOT BE OVER-EMPHASIZED.** It is very important that the sides and bottom of the mixing container are scraped with the spatula to guarantee complete mixing. For insurance that a complete mix is achieved, transfer the mixed material into a new container before pouring it into the mold box. Stir it once again. This greatly reduces the possibility that partially mixed material will be dispensed in the final pour.

### MOLD DEGRADATION

Certain casting materials such as polyester resin, epoxies and urethanes will shorten RTV silicone mold life through chemical and thermal attack on the mold surface. Chemical attack can be lessened by occasionally "baking out" the empty mold at a temperature of 160 - 200°F for 2 hours.

### BARRIER COATINGS

Many times there is a requirement to post-finish resin-cast parts produced in silicone rubber molds, e.g., polyester and urethane furniture parts which are finished with stains or lacquers. Barrier coatings are available as one-component coatings which are sprayed onto the silicone mold before the part is cast. When the cured part is removed from the mold, the barrier coated outer surface readily accepts conventional wood finishes. The use of properly formulated barrier coats will very definitely prolong mold life by preventing chemical attack by the casting resin. Barrier coats are available in clear or pigmented wood colors.

### CASTING CLEAR POLYESTER

Casting clear, unfilled polyester resin into RTV silicone molds will often result in parts which exhibit some sticky or wrinkled surface areas. High gloss, distortion-free surfaces are difficult to achieve on a consistent basis. Although a high gloss may be achieved on the original silicone surface, the mold will tend to lose its gloss with repeated resin castings. The use of clear barrier coating will promote a more glossy, tack-free finish. Another alternative is to post-finish the casting with clear acrylic lacquer. When transparency is not a factor in the casting, the use of fillers in the resin is always suggested.

### FILLERS IN CASTING RESINS

There are a multitude of fillers available for use in the various types of casting resins. Fillers can give a broad range of effects to the finished casting. They can provide increased or decreased weight to the casting, along with desirable surface texture or coloration. Many fillers lower the cost of the formulation, others increase strength and toughness. Some of the more commonly used fillers and the most noticeable effects they provide are:

1. **Calcium Carbonate** - This is the most commonly used and most inexpensive filler. It is used to produce synthetic marble effects.
2. **Talc** - This is a low cost, soft filler, used to produce parts which can be easily sanded.
3. **Glass & Expanded Silicate Microspheres** - These white fillers produce light weight castings. They are seemingly expensive when considered strictly on a per-pound basis; however, their extremely low density can result in casting mixes which are very economical.
4. **Phenolic Micro-balloons** - These red organic microspheres also produce light castings. This filler is easy on sanding abrasives and cutting tools.
5. **Aluminum Trihydrate** - This is principally used to contribute fire-retardancy to resin castings, and is also used with polyester clear-casting and marble resins to achieve a translucent onyx look.

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