

MoldMaking Essentials

Casting Concrete

Using urethane rubber to make molds for casting concrete has many advantages.

- ~Does not shrink
- ~Comes in a wide range of hardnesses
- ~Can be poured, brushed or sprayed on to the original model.
- ~Is the most economical overall (compared to other mold rubbers).
- ~ Has good abrasion resistance and therefore gives long mold life.

General Overview: To be successful in making a urethane rubber mold suitable for making one or more concrete castings, you need to first prepare your model to release the mold rubber (apply a sealer and release agent). Next, mix and apply mold rubber – if brushing or spraying rubber onto mold, applying a support shell will be necessary once the rubber is cured. After rubber is cured, remove from model. Before casting into mold, apply a release agent to facilitate demolding of cast piece. Mix and cast concrete or other material into mold. Allow concrete to dry and demold. If you have done everything correctly, you will have an exact copy of your original and can making many castings with your rubber mold.

For details on making molds, refer to Smooth-On’s technical bulletin on making molds available from Smooth-On or a Smooth-On distributor.

Before You Begin - Acquire Necessary Products

A. Select Mold Rubber – Decide if you will be applying rubber by pouring, brushing or spraying over your model. The most popular rubber mold products used for casting concrete:

Mold Rubber – Pourable:

PMC-121/30 (Soft, Flexible) – models with undercuts
PMC-860 (Medium Hardness) - intermediate
PMC-780 or 790 (Stiff, little flexibility) – Flat Molds, Concrete Stamps or Liners.

Mold Rubber – Brushable:

Brush-On 50 – Best sag/slump resistance. Best abrasion resistance of any brushable.
EZ Mix 50 – Easiest to mix.

Mold Rubber – Sprayable

EZ Mix 50

B. Sealing Agent (SuperSeal) C. Release Agent (Universal Mold Release)

D. In & Out Water Based Concrete Release Agent – to release casting.

E. Concrete

How To Proceede

Step 1. Seal Your Model Using Smooth-On SUPERSEAL.

If your model is porous (concrete, stone, wood) or made of water/sulfur based clays, it must be sealed. There are different sealers available such as shellac, paste wax or petroleum jelly thinned with mineral spirits. Smooth-On SuperSeal is a soap blend that will not interfere with surface detail and can be rinsed off of the model with warm water.

Apply 2 coats of SuperSeal to entire model and surrounding forms (let first coat dry 7 minutes before applying next coat, letting final coat dry 10 minutes).

Step 2. Apply A Release Agent – Smooth-On *Universal Mold Release*.

For easiest release, apply Universal Mold Release after SuperSeal is dry. Spray a light mist coating over surface of model and surrounding forms. Brush over surface and into areas of detail. Follow with another light mist coating and let dry for 15 minutes before applying rubber.

Step 3. Apply Mold Rubber.

Mix and pour, brush or spray mold rubber onto model as directed in the mold rubber's technical bulletin. If brushing or spraying rubber onto model, follow next day with application of a Support Shell. (Mother Mold).

Step 4. Demold.

Remove original model from cured rubber.

Step 5. Before Casting, Apply A Release Agent – In & Out Concrete Release.

Concrete, stone, cement and similar casting mediums are challenging because of their wear on rubber molds. Mold detail will erode quickly without the use of a proper release agent. **In & Out Water Based Release Concentrate** (available from Smooth-On) is best suited for this purpose. Mix In & Out as directed in technical bulletin (usually one part concentrate with 8 parts water) and spray mixture into mold cavity. Coat entire mold surface, making sure that areas of detail are covered. You do not have to let release dry. Cast concrete immediately.

Step 6. Cast Concrete.

Mix concrete as directed and cast into mold. Vibrate as necessary to remove air bubbles. Let cure as directed.

Step 7. Remove Casting From Rubber.

Call Us Anytime With Questions About Your Application.

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