

MAKING MOLDS USING RTVs

RTV COMPOUNDS

This section deals with making molds from a group of two-part compounds based upon catalytic action. The molds produced take less time to make than natural latex molds and vulcanize at room temperature.

The term RTV means "ROOM TEMPERATURE VULCANIZABLE".

Cementex compounds or distributes RTV mold making compounds in the following categories:

1. POLYSULFIDES
2. POLYURETHANES
3. SILICONES

POLYSULFIDES

Most suitable for making solid castings in plaster molds

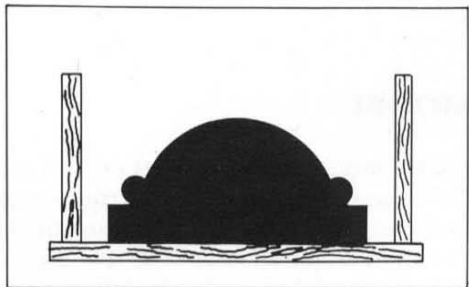
POLYURETHANES

Used for pouring and brushing. They have a fast set-up time. They are preferred for casting concrete, plaster, and wax.

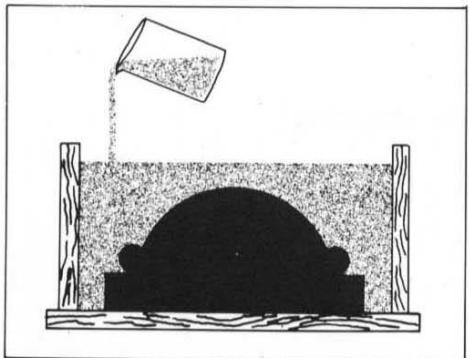
SILICONES

Provide excellent molds for everything including polyester resin. Silicone molds require degassing.

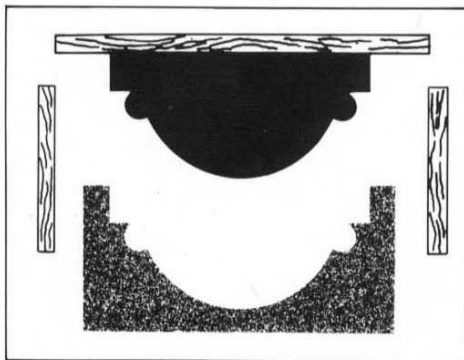
All RTVs require either FLEXOGLUE or a spray release as separators.



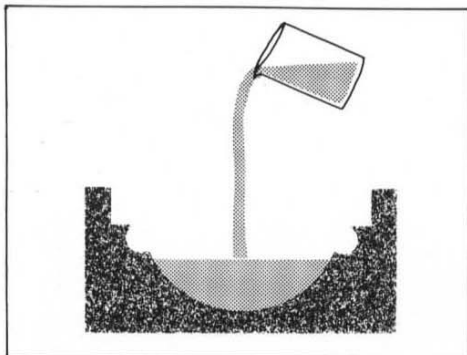
Masterpattern, base and frame.



Pour SP-16 slowly in a thin stream, to the lowest point of the mold, to avoid air entrapment.



Strip from mold after 48 hours.

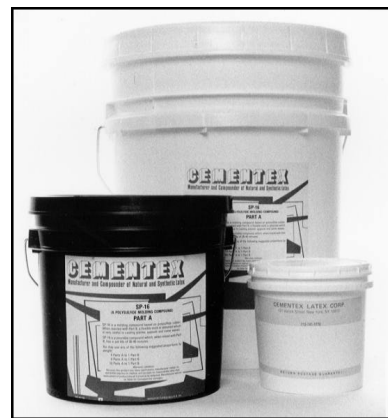


Reproduction of pattern.

SP-16 (Two-part Pourable Polysulfide Black Rubber)

SP-16 is a two-part pourable polysulfide black rubber. It consists of Part A and Part B. The two parts must be carefully mixed together in the appropriate proportions to ensure a proper cure. SP-16 contains no solvents or ether. When SP-16 is cured, a flexible mold is obtained that will maintain dimensional stability as well as detail. It is stable with production capability.

SP-16 is excellent for casting plaster, cement, wax, and some urethanes.



PREPARATION OF MODEL

A model of porous materials such as plaster or wood requires the application of an acrylic clear to seal all the surfaces. Plasteline, gypsum, or wax require no release agents.

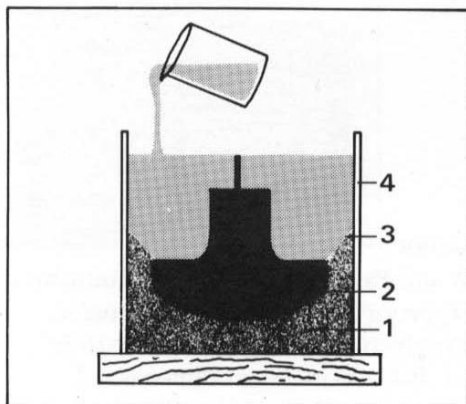
For a two-piece mold, wax along the mutual contact surface to ensure effective parting.

PROCEDURE

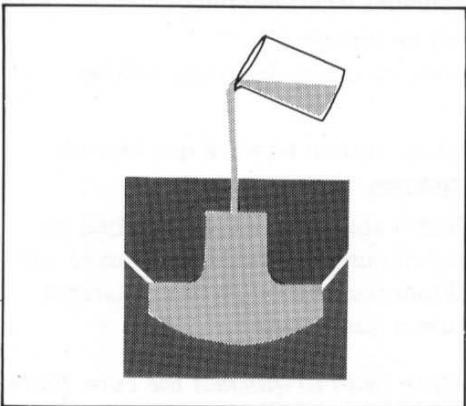
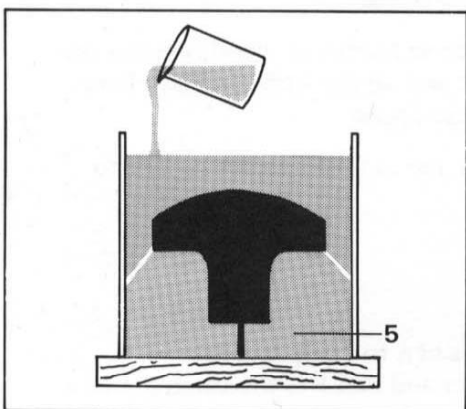
1. Carefully weigh out two parts of A to one part of B.
Part A is the polysulfide rubber and Part B is the catalyst. Use a clean metal, glass, or plastic container to avoid contamination.
2. Mix gently. Avoid entrapment of air bubbles.
(If bubbles appear in the mixture, vacuum degassing will be necessary.)
3. Paint the SP-16 over the model. Be certain to work quickly; the pot life of SP-16 is about 30 minutes.
4. After the SP-16 has been applied, it should stand undisturbed for about 48 hours to reach maximum cure. Elevated temperature will hasten the curing process, and increased amounts of the catalyst in the original mixture will cause a quicker cure.

In procedures that alter the mixture ratio to quicken the cure, there may be a downgrade of the finished cast as a consequence.





1. plasticine base
2. pattern
3. parting line
4. dismountable frame
5. first vulcanised half



MAKING A MASTER MODEL

SP-16 may be used to make a master model. You must first make a negative mold out of plaster. The SP-16 can then be poured into the negative mold. If you warm the mold first and tilt it, you will eliminate air bubbles. Some mold makers also brush in an initial coat of SP-16. If your model has a lot of undercuts, tilt the model to avoid air entrapment.

STORING THE MOLD

Store in a cool dry place without distortion.



CEMENTEX LATEX CORP. 121 Varick Street, New York, NY 10013

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ZERO GEL SERIES

Zero Gel is a series of products based upon various urethane elastomers. Although they may be brushed or poured, they have a look and feel that is completely different from natural latex. Zero Gels are supplied with a catalyst that is necessary to complete the reactions. All urethanes are supplied in an A and B form and cure at room temperature.

Zero Gel compounds have been formulated to react on a one to one basis by volume.

Zero Gel compounds are able to set at room temperatures and require 16 to 24 hours to firmly harden before demolding.

Zero Gel is offered in 3 shore hardnesses: 50 - 40 - 30.

PREPARATION OF THE MODEL

A model that is porous, such as dry plaster, wood, etc., should be sealed with a clear acrylic and sprayed with a spray release.

Do not puddle the spray release. After applying the release, brush it to make it uniform over the entire model.

If the model contains sulfur, particularly, acrylic spray should be applied to the surface.

After pouring out the required amounts, be sure to close the container lids firmly. Polyurethanes are moisture curing and will gel if the container is not securely closed. Also, do not mix the parts with wood or paper stirring rods because they can easily add moisture.

INSTRUCTIONS FOR USE

Mix part A and part B for about two or three minutes, being certain to mix the parts thoroughly. Stir evenly to avoid entrapping air while mixing.

Seal the model with acrylic spray and surface that with spray release.

Build a box around the positive, and seal that surface with acrylic, then spray release. *Do not use excessive amounts of spray release. Apply lightly and be sure that it is evenly coated over the entire surface. Brush it even after spraying.*

Pour. Allow polyurethane molds to cure for about 16 hours at room temperature before demolding.

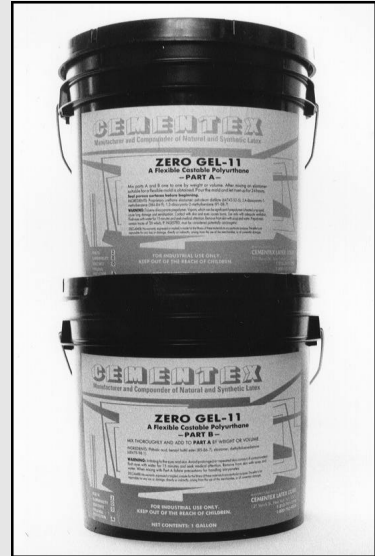
If the mold is made more than 1/2 inch thick, no back-up mold is necessary.

Pot life of all Zero Gels, after mixing, is about 20 to 30 minutes.

CASTING WITH ZERO GELS

Casting concrete, plaster, wax, or gypsum requires no release agents. When casting epoxies or polyurethanes, use any appropriate release agent.

When casting polyesters, coat the interior of the mold with FLEXOGLUE, our own grade of polyvinyl alcohol. This will lengthen the life of the mold.



POLYURETHANES

Polyurethane rubber molding compounds are always composed of part A, which is the rubber, and part B, which is the catalyst. When combined, a reaction occurs, forming a long chain rubber molecule of varying flexibility (shore hardness). Polyurethane may be poured or brushed on and sets up at room temperature.

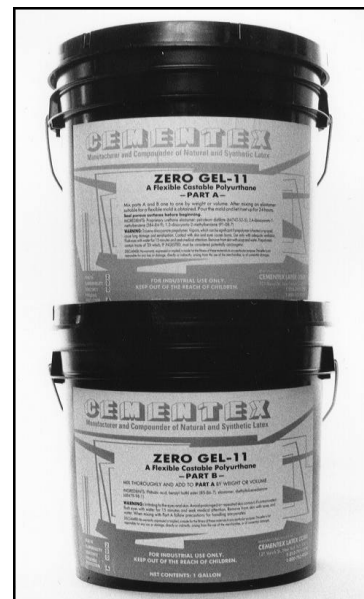




Debbie Turk, J.D.M. Originals
Savannah, GA

E Z KOTE BRUSH-ON POLYURETHANE COMPOUNDS

E Z Kote brush-on compounds are mixed one to one by volume and then *brushed onto the model*, or onto a vertical surface that has been sealed and coated with a spray release.



E Z Kote brush-on compounds come in shore hardnesses of 50, 40, and 30.

INSTRUCTIONS

1. Mount the model on a rotational platform and firmly attach the model to the base, using silicone caulk.
2. Seal the model with acrylic and then spray with mold release.
3. Measure one cup of A and one cup of B into a container, and blend thoroughly. Mix for several minutes. Also, be sure all the measured compound is combined. The exactness of the mixture is very crucial.
4. Coat the model by brushing on a thin coat to capture detail.
5. Wait until the first coat becomes tacky before mixing the parts for the second coat. (It takes about 30 to 40 minutes for the coat to become tacky.)

Mix a small amount of non-water base paint into the second coat so that the areas covered can be seen against the first coat.

6. Apply another two coats about every 40 minutes until the depth of the coats reaches about 3/8 inch thickness.
7. Let the rubber dry about 16 hours.

*Build a back-up mold before demolding.
A plaster back-up mold is sufficient.*



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SILICONE MOLDING COMPOUNDS

Cementex compounds or distributes a series of condensation cure and addition cure silicone products.

All Cementex Zero Sil silicones produce excellent detail, have low shrinkage and extended mold life.

All Zero Sil compounds are recommended for use with polyester, polyurethane, and stone products for giftware.

Cementex condensation cure silicone products:

V-1065	V-1012	V-1025
Green	Yellow	Blue
Shore A 40	Shore A 12	Shore A 25

INSTRUCTIONS

Condensation cure silicones are usually mixed by weight.

A 10% catalyst is added by weight to the silicone base.

The mixed silicone should then be de-aired in a vacuum chamber. The vacuumed silicone should now be poured within 30 to 40 minutes.

It is usually left in the mold between 12 to 16 hours for a final cure.

ZERO PUT 25 and ZERO PUT 35

Zero Put silicones are addition cured putty like molding compounds that are mixed one to one by volume and are cured at room temperature. Because they have a putty-like consistency, they may be troweled on or put on by hand. Zero Put requires no degassing or release agents.

Zero Put is used to make molds for polyesters, plasters, epoxy, etc.

Zero Put 25 dries up to a shore A hardness of 25.

Zero Put 35 dries up to a shore A hardness of 35.

INSTRUCTIONS

1. Clean and dry your model.
2. Mix equal parts A and B by volume until uniform.
3. Apply the mold material to your model within 20 minutes.
4. Allow mold to cure for about six hours.



SILICONE MOLDING COMPOUNDS

Silicones are two-part molding compounds based upon catalytic action. There are two basic mold making silicones: condensation cure and addition cure. Condensation cure silicones use tin in the curing process. They will set up at room temperature. Addition cure uses platinum in the curing process. They will set up at room temperature or with the addition of heat.





LIQUID PLASTICS

Liquid plastics are a group of compounds that are composed of Part A and Part B and will set up as a hard plastic when cast into a mold. Cementex cast products are used by the prototype, miniature toy, special effects, and other similar industries.

LIQUID PLASTICS

Cementex cast plastics are hard plastic materials that are cast into urethane or silicone molds. They are low-viscosity products and set up in a variety of times.

INSTRUCTIONS

Mix one part of A to one part of B by volume and pour.

A hard polyurethane cast will develop in about 10 minutes.

Cement Cast 70 -- Tan

Cement Cast 70 -- White

Cementex Crystal -- Clear 80

Cement Cast 70 sets up in a shore hardness of 70.

Crystal Clear sets up in a shore hardness of 80.

Avoid the entrapment of air while mixing part A and part B.

When thoroughly mixed, pour directly into the prepared mold.

Demold after 10 minutes or after the cast has completely hardened.



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POLYESTER RESINS

Polyester resins come in clear (**PE 300**)
as well as in a greenish yellow color (**PE 200**)

All polyester resins consist of part A, which is the resin, and part B, which is the catalyst.

Polyester resins may also be used to cast into silicone rubber molds to obtain solid objects that are light in weight.

The PE 300 resins find good use in theatrical applications and may be colored.

Polyester resins can be thinned, and cleaned up, with acetone.

INSTRUCTIONS

Use one teaspoon of catalyst to one quart of resin in order to activate the resin. Polyester resins generate a great deal of heat while they are setting.

Note: The terms fiberglass and polyester resin are commonly used interchangeably!

PE Hardener:

A hardener for polyester resins that make them set up quickly.

Fiberglass Matt:

Available in 1.5 or 2 ounce weight, Cementex Fiberglass Matt is used with the fiberglass resin in making back-up molds.

(See video)



POLYESTER RESINS

Polyester resins are sold by Cementex for making a back-up shell for natural latex molds. The process is explained in our video "Constructing a Fiberglass Mother Mold".

