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INSTRUCTIONS FOR COLD MOLD COMPOUND

No. 179-037

Traditional Cut Molds

1. Measure out equal parts of Part A (light blue) and Part B (purple) so that when combined they fill the entire mold frame you are using. It is recommended that the amounts be weighed for accuracy to ensure proper curing of the compound.
2. Rapidly knead together both Part A and Part B until a uniform color is obtained. You have a total working time of approx. 2 minutes, so work quickly. Once the compound is entirely mixed (with no streaks of color) divide the compound into 2 equal parts. [fig 1]
3. Working quickly, press 1/2 of the compound into the mold frame making sure that the compound reaches the bottom of the frame (the frame should be on top of one of the mold plates). Position your model in the center of the frame and press it into the compound until the top edge of the model is nearly flush with the surface of the compound. [fig 2]
4. Place your sprue button and rod into position, making sure that the sprue rod is at least 1/8" away from the model (as shown in the photo at right). Press down half-way. [fig 3]
5. Working quickly, press the other 1/2 of the Cold Mold Compound into the mold frame. The top of the compound should be slightly above the top edge of the mold frame to force the compound to fill the entire mold frame when pressure is applied. [fig 4]
6. Place the second mold plate on top of the mold frame, pressing the plate down with the palm of your hand. Although Cold Mold Compound cures without heat, slight pressure is needed to ensure a good mold. Pressure can be applied to your mold in any one of the following ways:
 - Place the mold frame in a cold vulcanizer and apply pressure until the mold plates touch the top and bottom of the mold frame. This is the preferred method because it applies even pressure over the entire mold frame.
 - Use an adequate number of C-clamps or similar clamps to bring the mold plates into contact with the mold frame.
 - Place a heavy weight, such as several large books, on top of the mold frame.
7. After approximately 30 minutes under pressure the compound should be completely cured and the mold can now be removed from the mold frame. Remove the plates from either side of the frame and push the mold out with your fingers. Using a pair of scissors, remove the excess compound that has squeezed out from between the frame and mold plates.
8. The mold can now be cut open using a mold knife. To ensure that the mold halves remain properly aligned after cutting, registration locks (as shown at right) are cut into the corners of the mold as described below. [fig 5]
 - Make a cut around the entire perimeter of the mold at the mid point of its thickness. This cut should be no more than 1mm deep.
 - Starting from one corner of the mold, angle your knife upward and make a 1/8" long cut along the perimeter while pulling up the top of the mold.
 - Make the next cut straight across toward the center of the mold. Continue pulling up on the top of the mold to provide clearance for your knife.
 - The final cut is angled downward toward the bottom of the mold, back to the mid-point of the mold thickness. This process is repeated for each corner of the mold.



fig 1



fig 2



fig 3



fig 4



fig 5



fig 6

9. Once all four registration locks are cut, the rest of the mold can be cut apart. Working slowly, make small cuts towards the center of the mold. At this point, It is helpful to visualize the size, shape, and position of the model in order to locate it within the mold. Your objective is to have the parting line (where the two mold halves meet) in the most inconspicuous and easy to clean up place on the model. As the mold is being cut, the two halves can be pulled away from each other to make it easier to work, but it is important not to pull too strongly because the compound may tear and make your cut deeper than you want. [fig 6]
10. After the mold is completely cut and the model, sprue rod, and button are removed, gates are cut into both halves of the mold to join the sprue to the model cavity. Vents can now be cut into the mold to ensure complete filling during wax injection or white metal casting. [fig 7]



Powder Separation Molds

1. Prepare at least 4 brass locators by folding each of the four prongs on each locator toward the center of the locator. After bending the prongs, press each locator onto a flat surface so that the prongs are all flush with the table surface. Set aside. [fig 8]
2. Weigh equal quantities of Part A (light blue) and Part B (purple) so that when combined, they fill approximately half of your mold frame. It is recommended that the amounts be weighed for accuracy to ensure proper curing of the compound. [fig 9]
3. Rapidly knead together Parts A and B until a uniform color is attained. You have a total working time of approx. 2 minutes, so work quickly. Before proceeding to the next step, be sure that the compound is entirely mixed with no streaks of color. Set aside a small amount of compound to fill the locators. [fig 9]
4. Working quickly, press the compound into the mold frame making sure that the compound reaches the bottom of the frame (the frame should be on top of one of the mold plates). Position your model in the center of the frame and press it into the compound until the top edge of the model is nearly flush with the surface of the compound. [fig 10]
5. Fill the locators with the compound set aside in step 2. Position one locator at each corner at least 1/8" away from the side walls of the mold frame. Place your sprue button and rod into position, making sure that the sprue rod is at least 1/8" away from the model. Press down half-way. As the compound begins to cure it may be necessary to hold down your model to prevent it from rising above the surface. [fig 11]
6. Lightly brush mica powder over the entire surface of the rubber and blow off any excess powder from the surface. It is not necessary to wait for the compound to cure completely before continuing.
7. Repeat steps 2 and 3, using slightly more compound than is necessary to fill the rest of the mold frame. Again, make sure that the compound is mixed completely. There is no need to set aside compound for the locators.
8. Press the compound into the mold frame. The top of the compound should be slightly above the top edge of the mold frame. [fig 12]
9. Place the second mold plate on top of the mold frame, pressing the plate down with the palm of your hand. Although Cold Mold Compound cures without heat, slight pressure is needed to ensure a good mold. Pressure can be applied to your mold in any one of the following ways:
 - Place the mold frame in a cold vulcanizer and apply pressure until the mold plates touch the top and bottom of the mold frame. This is the preferred method because it applies even pressure over the entire frame.
 - Use an adequate number of C-clamps or similar clamps to bring the mold plates into contact with the mold frame.
 - Place a heavy weight, such as several large books, on top of the mold frame.



fig 8



fig 9



fig 10



fig 11



fig 12



fig 13

10. After approximately 30 minutes under pressure the compound should be completely cured and the mold can now be removed from the mold frame. Remove the plates from either side of the frame and push the mold out with your fingers. Using a pair of scissors, remove the excess compound that has extruded between the frame and mold plates.
11. To separate the mold, simply pull the two halves apart. Remove the model from the mold, flexing the mold if necessary. [fig 13]
12. Once the model is removed, gates are cut into both halves of the mold to join the sprue to the model cavity. Vents can now be cut into the mold to ensure complete filling during wax injection or white metal casting. [fig 14]



Open Face Molds

1. Measure out equal parts of Part A (light blue) and Part B (purple). It is recommended that the amounts be weighed for accuracy to ensure proper curing of the compound.
2. Rapidly knead together both Part A and Part B until a uniform color is obtained. You have a total working time of approx. 2 minutes, so work quickly. Before proceeding to the next step, be sure that the compound is entirely mixed with no streaks of color. [fig 15]
3. Working quickly, press the compound into the container making sure that the compound reaches the bottom. Position your model in the center of the container and press it into the compound until the top edge of the model is nearly flush with the surface of the compound. As the compound begins to cure, it may be necessary to hold down your model to prevent it from rising above the surface. [fig 16]
4. After approximately 30 minutes the model can be removed and the mold is ready to use.



Estimating Compound Amounts

In order to obtain more accurate estimates of the amount of Cold Mold Compound needed to fill a particular mold cavity it is a good idea to write down the amounts of Part A and Part B used with each size mold. Use this weight as a basis for future estimations, taking into account the differences in the size and thickness of your models.

Kneading Part A & Part B

Mixing small amounts of Cold Mold Compound is easy to accomplish by simply kneading Part A and Part B together. The 2 minutes of working time is more than adequate to make a small or average size mold. This may not be the case with larger molds. When making larger molds it is important to mix the compound as quickly as possible but it is extremely important that the compound be mixed thoroughly. To make mixing quicker and easier, follow these steps:

1. Measure equal Parts A & B
2. Spread the separate parts into flat sheets approx. 1/8" thick
3. Place the sheets on top of one another and roll into a cylinder
4. Fold the cylinder in half lengthwise
5. Twist the cylinder and continue kneading until a uniform color is achieved.

Methods of Applying Pressure

Although Cold Mold Compound cures without heat, some pressure is needed to ensure a good mold. The most effective method of applying pressure to a mold during curing is to use a vulcanizer. The vulcanizer should be used COLD (not turned on) applying only enough pressure to keep the mold plates in contact with the mold frame. This method provides constant, even pressure to the mold and can be adjusted if necessary. Another method of applying pressure involves the use of C-Clamps or other similar clamps. The difficulty with using clamps is the unevenness of the pressure being applied. It may be necessary to use a stiff material along with the mold plates, as the plates may bend under uneven pressure (especially when making large molds). If clamps are not available, a heavy weight such as a large book can be used to maintain pressure during curing.

Powder Separated Molds vs. Cut Molds

Most molds can be made using the powder separation method with good results. This method is quick and has the advantage of very easy mold separation after curing. While traditional cut molds take longer to separate after curing, they also offer several advantages over powder separated molds. Perhaps the most important advantage is the increased control you have over where the parting lines appear on your final piece. This is especially important when molding complex models or those with elaborate surface textures. Another advantage of cut molds becomes evident when making large molds. Instead of mixing the Cold Mold Compound in two “batches” and having to worry about the short working time and shifting of your model, you mix the entire amount at one time, because both halves are made at the same time.

Wax Injection

While most molds made with Cold Mold Compound are as easy to inject as any other mold, care must be taken due to its relatively low durometer (35). As with other types of molds, injecting plates should be used to provide even pressure to the mold. The amount of pressure required depends on the size of the mold as well as the size and shape of the cavity. If too much pressure is applied, the mold may become distorted, resulting in inaccurate and misshapen waxes with pronounced parting lines. Conversely, if too little pressure is applied to the mold, the resulting wax may exceed the boundaries of the cavity. Simply stated, the wax injection process may require some trial and error to ensure accurate waxes.

“Proof” Models

The low cost and minimal time requirements of making a mold with Cold Mold Compound make it perfect for “proofing” wax models before they are cast. Instead of sending your original wax model to your client for approval, risking damage or loss of the model, wax injections from a cold mold can be sent instead. And since Cold Mold Compound is a 0% shrinkage silicone, wax injections can also be used to check for accuracy of size/fit. These molds can also be used to produce “master” patterns which can be altered in any number of ways for production purposes. The security provided by making fast, accurate molds of original models makes Cold Mold Compound invaluable to any modelmaker.