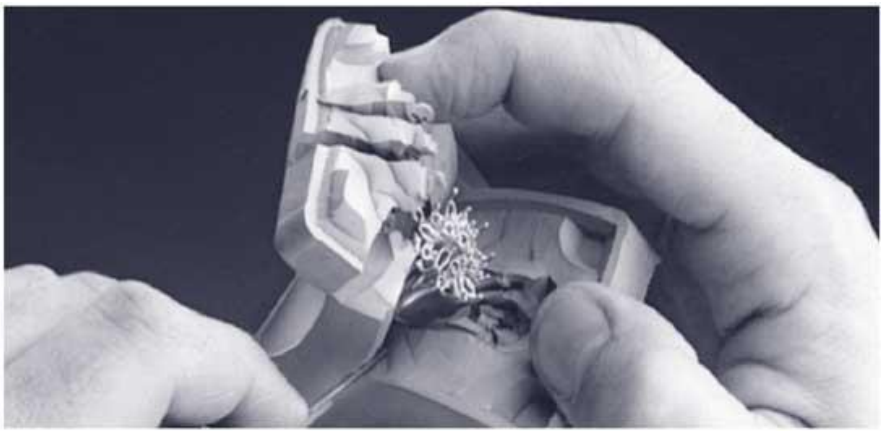
Fact Sheet and Technical Bulletin



General

Castaldo Jewelry Molding Rubber has been the industry standard for more than 40 years and continues to be the best jewelry molding rubber available for lost wax jewelry casting.

Castaldo White Label®, the less expensive and firmer of our two grades, has a high concentration of pure natural gum rubber, which makes it resilient and pliable, qualities that the experienced mold-maker values in his efforts to produce high-quality molds in the shortest reasonable time.

Castaldo Gold Label® contains even more pure natural gum rubber, making it even softer and more pliable. Experienced mold-makers know that this compound's superior qualities can save them substantially on labor costs when used for difficult molds containing undercuts, where a stiffer mold would break delicate wax patterns or would make their production impossible altogether.

Both compounds are unique in consistently allowing one to cut with the knife, not ahead of it, a small but important detail that allows the mold maker complete control.

Precautions

The care and labor invested in a Castaldo rubber mold can last for decades. The mold will retain its characteristic "memory" and flexibility long after other mold rubbers have become crumbly and stiff.

• Uncured mold rubber will retain its propertiesaway for up to one year if stored from direct sunlight at temperatures below 70ºF (21ºC). Longer shelf life may be obtained by refrigeration **at no less than** 32ºF (0ºC). **DO NOT FREEZE!** Accidental vulcanization through exposure to heat or by excessive aging will make the rubber useless for mold making.

• AVOID storing unvulcanized mold rubber near heat sources such as radiators, furnaces, in hot attics or in direct sunlight. Date all boxes of mold rubber when received and **rotate your stock** as the rubber vulcanizes slightly day by day throughout its expected shelf life and is at itspeak when new.

normal skin oils may cause separation problems. Use tools, tweezers, pliers, etc. as much as possible to pack mold frames. If it is necessary to handle the rubber by hand, attempt to touch only the edges.

• Take care not to pack a mold frame with rubber laid out in different directions - that is, try to observe the natural "grain" of the rubber, avoiding the possibility of molds that are stiff or springy.
• In general and aside from other considerations, thin molds are best made from Castaldo White Label. Similarly, thicker molds benefit from the added flexibility of Castaldo Gold Label.

Preperation of models and molds

The model to be embedded in Castaldo Jewelry Molding Rubber must be perfectly clean and dry for production of the best possible molds. Cleaning in a solution of water, mild detergent and ammonia is recommended, as is ultrasonic cleaning. Some workers prefer as a matter of routine to electroplate their models with rhodium to assure a high shine finish and utmost cleanliness.
Models made of brass should not be used unless they are first plated with some other metal, as brass may sometimes bond to compounds in the rubber. Later separation is extremely difficult.

Check your vulcanizer temperature regularly with a reliable thermometer. Measure the top and bottom plates separately using a block of scrap wood, first between the top plate and the thermometer and then between the bottom plate and the thermometer.
Sudden thermostat failures are common and are the main cause of mold making problems!
Do not trust the dials on your vulcanizer -- they are often wildly inaccurate !!!
For advice on how to check and calibrate your vulcanizer, see:
http://www.castaldo.com/english/faq/vulc_test/vulc_test.html

Keep Castaldo Jewelry Molding Rubber as clean as possible. It should not normally be necessary to clean the unvulcanized rubber, and if small quantities become soiled for any reason it is normally both advisable and prudent to discard the piece.

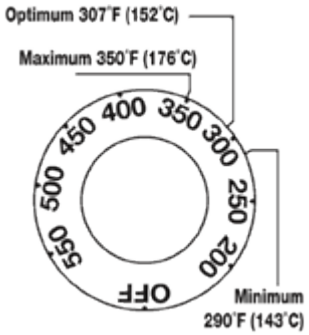
However, if cleaning is absolutely necessary, mineral spirits or industrial cleaning agents such as acetone may be used.
You may find a white powder coating one side of Castaldo Jewelry Molding Rubber. This powder is part of the compound and need not be cleaned off - it will merge with the rubber during vulcanization.

Similarly, the ink used to label Castaldo Jewelry Molding Rubber need not be cleaned off if it has left an impression on the rubber itself - it is harmless to molds and models alike.

Vulcanization

Each experienced mold maker has his or her own technique for vulcanization molds, and if a techniqueproduces good results, there is no reason to change it. The following suggestions,

however, may prove useful:
Optimum results are achieved at a vulcanization temperature of 307ºF (152ºC). Calculate vulcanization time asfollows: 7.5 minutes for every thickness (1/8 inch or 3.2 mm) of mold rubber, with a minimum time of 30 minutes.



Thus a 3/4 inch mold (19 mm) consisting of six thicknesses should be vulcanized for 45 minutes (6 x 7.5). A half inch mold (13 mm) should be vulcanized for 30 minutes (4 x 7.5).

• Castaldo Jewelry Molding Rubber will normally flow into and around the most intricate and detailed parts of a jewelry model. In the unlikely event that difficulty is experienced, however, it is advisableto reduce vulcanization temperature to 290º F (143ºC) and double the recommended vulcanization time. This will allow a longer period for the rubber to flow in semi-liquid form. Poor flow is also a symptom of under packing and of too high vulcanizing temperatures. Do not rely on thermostat dials but check your vulcanizer with reliable thermometer instead.

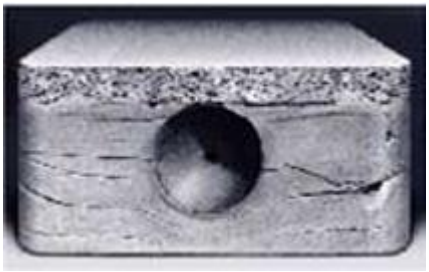
Mold frame packing

The polished cloth backing supplied with Castaldo Jewelry Molding Rubber may be left on the top and bottom pieces packed in a molding frame, either to insure cleanliness or to provide a surface for writing on. Some workers use the cloth to sketch out the model inside as an aid to mold cutting and identification. The cloth will peel off easily after vulcanization. It will not melt or burn at recommended temperatures. The blue plastic liner supplied on some forms of Casdtaldo Jewelry Molding Rubber ***MUST***, however, be removed completely before vulcanization.

To insure the proper flow of rubber into the model, it is suggested that you pack one additional thickness of rubber n each frame.
Thus a 3/4 inch (19 mm) mold frame, which would otherwise take six thicknesses of rubber, should be packed with seven. Sizeable cavities in models should be packed with scraps of rubber, taking care to use tweezers or other tools rather than bare fingers.

Attempt to place the jewelry model in the center of the mold with as many thicknesses of rubber above the model as seen or excessive pressure can often result in extremely dense, hard and difficult to cut molds. Sometimes these molds have an excessively springy quality as well.

Three signs that a mold has been under-packed are:



1. The appearance of separate layers of rubber along the edges of the finished mold.

2. A sponge rubber-like appearance caused by thousands of tiny air bubbles.

3. Large pits or depressions in the top and bottom surfaces of the mold.

4. Not having been packed fully enough. Separate layers of rubber are easily visible, as are air bubbles. not having been packed fully enough. Separate layers of rubber are easily visible.

Pre-heat the vulcanizer until it reaches the proper temperature and then place the loaded mold frame between the vulcanizer plates. Let it rest there for a few moments, but not longer than 3 minutes. Tighten the vulcanizer press slowly, avoiding extreme pressure. Do not tighten beyond what can be done by hand as delicate models can be bent by the resulting internal pressure.

Expect to see some rubber flow out of the mold frame as vulcanizing progresses. If this does not occur, the mold frame is probably underpacked and subsequent frames should be packed more fully.

After the first few minutes of vulcanization, some workers prefer to "bump" the molds - releasing pressure for a moment no later than the first 3 or 4 minutes to let out accumulated air pockets and then retightening the vulcanizer press. Check the tightness of the vulcanizer occasionally during the first 10 minutes of vulcanization and tighten as necessary.
Slow cooling of the mold after vulcanization has ended is suggested, but if speed is necessary, the mold can be plunged directly into cold water without ill effects.

Mold cutting

A cold mold is harder to cut than a warm one. Change knife blades frequently. Blades will cut more easily if dipped occasionally in a solution of water and liquid household detergent. Dull blades are hard to cut with and are a common cause of accidents.





Guide to solving common mold making problems.

Finished mold is tacky and soft.

Cause: Insufficient vulcanization time and/or temperature.
Solution: Check vulcanizer with accurate thermometer and observe recommended time and temperature.

Finished mold hard and springy - won't lie flat.

Cause: Excessive pressure. Excessive vulcanization time and/or temperature.
Solution: Reduce pressure. Check temperature with accurate thermometer. Observe recommended time and temperature.

Mold curls, won't lie flat.

Cause: Mold began vulcanizing before pressure was applied.
Solution: Close press and tighten as soon as mold frame is placed inside.

Partial de-lamination of mold into separate layers.

Cause: Contamination with hand oils, silicone spray, talc etc.
Solution: Discard and ensure future cleanliness.

Air bubbles throughout and/or large depressions in top and bottom surfaces.

Cause: Mold frame underpacked.
Solution: Pack mold frame more fully.

White powder on unvulcanized rubber.

Cause: Normal
Solution: Disregard - do not attempt to clean it off.

Rubber hard and won't vulcanize.

Cause: Full or partial vulcanization through accidental exposure to heat and/or aging.
Solution: Discard and ensure proper storage techniques.

Rubber hard and stiff.

Cause: Rubber frozen through long exposure to cold.
Solution: Warm slowly at approximately 100°F (38°C).

Excessive shrinkage.

Cause: Too high vulcanization temperature.
Solution: Check setting with accurate thermometer and observe recommended temperature and time. Also, reduce temperature to 290°F (143°C) and double the time.

Rubber does not flow into all cavities.

Cause: Not packed properly.
Solution: Pack cavities with scraps of rubber.

Rubber does not flow into all cavities.

Cause: Vulcanizing temperature is too high.
Solution: Use accurate thermometer and observe recommended time and temperature.