

Douglas and Sturges, Inc.

SCULPTURE TOOLS, MATERIALS AND SUPPLIES

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SR-1644/1654 Silicone RTV

Description: SR-1644/1654 are two component room temperature vulcanizing, condensation cure silicone elastomers. When mixed in a 10 to one ratio by weight with the appropriate catalyst they give firm durable rubber compounds suitable for making molds for casting a variety of media. The main features of these materials are; good tear resistance, moderate heat resistance and excellent physical properties.

Typical Properties:	SR-1644	SR-1654
Color	Yellow	Pale Blue
Specific Gravity	1.10	1.24
Viscosity	80,000cps	45,000 cps
Hardness (Shore A)	40	50
Tensile Strength	500 psi	450 psi
Tear Strength	80 ppi	50 ppi
Elongation @ Break (%)	320	290
Shelf Life @77 F	1 yr.	1 yr.

General Instructions: SR-1644/1654/ are vulcanized by the addition of curative part B. The addition of 10% by weight of the B component will give pot life of approximately 25-30 minutes at 70 degrees F. If vacuum degassing equipment is available, it is a good idea to deair the material before it is poured or applied to your model. If this equipment is not available it is not absolutely necessary to deair SR-1644/1654 before use in order to make a good mold. These materials pour well enough that most air bubbles will float away from the surface of the model. To insure the best possible mold surface, it is sometimes advisable to brush a coat of the material being used onto the model before pouring.

Preparation of the Model: In many cases the surface of the model being molded does not need any preparation before pouring SR-1644,1654 onto it, but there are exceptions. When in doubt, it is always advisable to do a test to see if the materials are compatible. Porous surfaces in general should be sealed with a thin coat of shellac or lacquer and then have a coat of mold release, such as Mann's Ease Release 800, Petrolatum or Petrolatum thinned with Naptha applied to avoid any reaction or adhesion between the two materials. DO NOT use Universal Mold Release or any release containing silicone as these will react and cause adhesion. Nonporous surfaces such as metal, glass or glazed ceramics should be treated with a thin coat of mold release to avoid any reaction or adhesion between the two materials. Certain clays such as Roma Plastilina and Chavant Clay as well as other types of silicone RTV's and polyurethane RTV's may inhibit the cure of SR-1644/1654 if left untreated. If your model is made out of any of these materials, simply seal with shellac and apply mold release to avoid this problem. Most plastics, waxes and painted surfaces do not need to be treated with either a sealer or a release agent before the application of SR-1644/1654. Again, when in doubt run a test for compatibility.

Application of the Rubber: Although SR-1644/1654 may be poured over a prepared model similarly to any other RTV material, it is sometimes easier to make a blanket mold by applying the silicone directly to the model by thickening the rubber and brushing or spatulating it onto the surface. To do this it is first necessary to thicken the rubber by the addition of Viscosil . This liquid when added to the base material at levels of 3-5% along with a concentrated catalyst will give a nice buttery compound that can then be brushed directly onto the model. To use this material weigh the base (A component) into a clean, dry vessel and add 3-5% by weight of the Viscosil . Blend these two components before adding the catalyst. Once the base material and Viscosil have been blended into a homogeneous mixture the catalyst should be added and the mixture blended and used immediately. Only mix amounts that can be used in 15 minutes. Brush quickly but carefully onto your model and if necessary deair the surface by blowing compressed air at the compound while in place. This may be done prior to spreading heavy coats. It is easy to do large molds using this technique, and we recommend an average thickness of 1/4" for most applications. Although an SR-1644/1654 mold may be removed from a model in approximately 8-12 hours, it is recommended that it be allowed to cure on the model for at least 24 hours (at 70 degrees F) to gain full strength of the material. When making multiple piece molds, by applying a thin coat of petrolatum or mold release to the existing surface, a subsequent section may be cast or applied without adhering to the previous section.

Softer Molds: Softer molds are obtainable by adding between 10 and 20 percent silicone fluid to SR-1610/1618/1621. But, adding fluid to the rubber will adversely affect tear strength, so molds will tend to be weaker.

Accelerated Curing: By adding FC-200 to SR-1644/1654 in addition to the regular catalyst in ratios of 2-5%, molds may be cured in as little as 30 minutes. To use, add 2-5% FC-200 to base material, mix thoroughly and add regular amount of catalyst. We also recommend that additional catalyst (up to 15%) be used to maximize the efficiency of the FC-200. Remember, that along with reduced cure times, working times will also be reduced considerably; so only mix that material which can be used in 5 minutes or so.

Using the Mold: Gypsum and portland cements can be cast directly into molds made from SR-1644,1654, without a mold release. It is sometimes advisable to apply some D&S Mold Rinse to the surface of the mold before casting cementitious compounds into it. This will allow the cement to thoroughly "wet out" the mold and eliminate any air bubbles in the casting. Most waxes can be cast directly into an SR-1644/1654 mold as well without any hangups. It is recommended when casting polyester or polyurethane resins into a mold made from SR-1644/1654 that a mold release and/or a barrier coat be used to achieve best possible mold life. If you only need 10 castings, probably no mold release is necessary, but if on the other hand you want to obtain maximum mold life while casting these materials, we recommend using a variety of things. Firstly as a general purpose release agent for plastic resins, simply spraying with Teflon# spray and following with silicone spray, mold life will be enhanced. Secondly, by using a specific type of mold release for a given type of casting resin such as Universal Release* or D&S RA-7310, mold life will be maximized; and thirdly by using a barrier coat on your mold optimum mold life will be obtained. It is not recommended that epoxies or metal alloys be cast into molds made from SR-1644/1654, except on a limited basis.

Storing Molds: Molds should be stored in a relatively cool area and should not be rolled or folded. Rolling or folding molds may have a tendency to change the shape of the mold. A properly stored SR-1644/1654 mold should last at least 5 years.

"The information and data contained herein are based on information we believe reliable. Each user of the material should thoroughly test any application and independently conclude satisfactory performance before commercializing. Suggestions of uses should not be taken as inducements to infringe on any particular patent."

*Registered Trade Mark Smooth-On, Inc.

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