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Technical Sheet MOLDMAKING RUBBERS

Silicone RTV Latex Urethane RTV

At first, the process of selecting a Moldmaking System can seem a difficult undertaking, but understanding basic concepts and answering some fundamental questions will improve the process. There are two types of molds—Rigid and Flexible—each with its own set of inherent advantages and disadvantages. We will focus on the later—Flexible Molds—because of their simplicity, ease of use, and the ability to generate highly detailed and complex patterns with a flexible rubber compound. It should be said that a Flexible Rubber Mold, and not the converse, could make any Rigid Mold. Also, Rigid Molds are more difficult an undertaking even for an experienced professional; therefore, Flexible Molds can reproduce detailed and complex forms without much difficulty.

Which mold material is best to use depends on several factors:

1. What is the final product to be made of?
2. Is the pattern (original) soft, fragile or rigid?
3. Is there a lot of detail or undercuts on the pattern?
4. Is the mold to be made in one, two or more parts?
5. Brushed On or Poured?
6. Will it need a Mother-Mold for support?

GENERAL RULE: *Flexible Mold Materials*—Latex, Silicone and Urethane RTV are used for producing hard parts or parts that have negative draft (undercut). *Rigid Mold Materials*—Plaster, Epoxy and Polyester-Fiberglass are used to produce soft and flexible parts or rigid parts that have good draft (no undercuts).

Silpak, Inc. supplies several varieties of Moldmaking rubbers, each system with its unique physical characteristics (i.e., Hardness, Elongation, Tear Strength...), processing, and casting application. All systems will reproduce virtually any surface or shape, with precise detail, providing the user with a flexible, durable, and reusable mold that can produce multiple castings. Review *Table below* when selecting a moldmaking rubber system.

Mold Methods: Two basic methods for applying these materials: *Brush-On or Pour-On*. The Brush-On technique is the most economical since it reduces the amount of moldmaking rubber used, although it is more labor and time intensive and is used primarily for large parts. On the other hand, the Pour On technique is the most widely employed because of how quickly and easily molds are fabricated.

MOLDMAKING RUBBER	USE TO CAST	MOLD METHOD	Disadvantage	Advantage
<p>Latex Single Component liquid that air dries in thin sections with a mold requiring 10-30 coats applied at 1-4 coats a day</p>	<p>Cement, Plaster, Wax</p>	<p>Brush or Dip Coated Molds usually require a Back-up/Mother Mold for support Use for Glove Mold</p>	<p>Length of time to build mold, cannot be poured in a thick mass Require Mother Mold for Support Highest Shrinkage</p>	<p>Highly Elastic, Tear Resistant Inexpensive</p>
<p>Silicone RTV Two-Component liquid when mixed cures to a solid rubber within a day <i>Two Systems:</i> Tin(Condensation Cure) & Platinum (Addition Cure) RTV **Tin Based Systems are more user friendly and most widely used</p>	<p>All Materials including Polyester and Urethane Resins, Low Melt Metals</p>	<p>Pour or Brush Use for Block, Split, Multi-Piece, Glove or Blanket Molds</p>	<p>More Expensive than either Urethane or Latex Rubbers **Platinum Silicone RTV Systems require extra prep work and special attention</p>	<p>Easy to Use Best Detail Reproduction High Tear Resistance and Flexibility No Release required for Casting</p>
<p>Urethane RTV Two-Component liquid when mixed cures to a solid rubber within a day</p>	<p>Cement, Plaster, Wax</p>	<p>Pour or Brush Use for Block, Multi-Piece, Glove or Blanket Molds</p>	<p>Release Required when making mold and when casting any resin or cement</p>	<p>Good Mold Storage Life Excellent Air Release</p>