MOLDMAKING

MATERIALS FROM DOW CORNING

A step-by-step guide to product selection
Create quality reproductions, time after time.

If you’re looking for an easy-to-use moldmaking material that will deliver consistently superior results, look no further. With silicone moldmaking materials from Dow Corning, you can create tough-but-flexible molds to reproduce intricate details and deliver high-quality replicas, again and again. Remember, the closest thing to a reproduction from a silicone mold is the original itself.

We make a variety of products to meet a variety of needs: from reproduction of figurines, collectibles, jewelry, candles, and artifacts; to molding of prototypes, industrial tooling, and furniture; to creating silicone rubber pads for transfer printing and robotic skins for animated creatures; to architectural fabrication. Our products can be used with masters made of stone, glass, wood, metal, wax, ceramic, plaster, and clay. And they’re compatible with a wide range of casting materials.

Each product consists of two components: a liquid silicone rubber base and a catalyst or curing agent. There are two basic cure types — condensation cure and addition cure — each containing several products in a range of viscosities with variable cure times. To identify the product(s) best suited to your application, start by using the product selection tree and typical moldmaking variables chart in Step 1.
### Silicone Moldmaking Materials from Dow Corning

**Condensation Cure Products**

**Dow Corning® and Silastic® Brand Silicone Rubbers**
- For molding figurines, decorative reproduction, and making transfer pads.
- Provide outstanding resistance to inhibition.
- Use tin catalyst.
- Offer variable cure times at room temperature.

**Addition Cure Products**

**Silastic® Brand Silicone Rubbers**
- For engineering design, prototyping, architectural fabrication, and making transfer pads.
- Use platinum catalyst.
- Cure can be heat accelerated.
- Exhibit virtually no shrinkage when cured at room temperature.
- Offer better chemical resistance.

#### Typical Moldmaking Variables

**Silicone Moldmaking Materials from Dow Corning**

- Are easy to use.
- Reproduce intricate details.
- Hold severe undercuts.
- Feature excellent natural release characteristics.
- Offer tailorable working times and cure rates.
- Are flexible to reduce demolding and stress problems.
- Provide good resistance to most chemicals.
- Resist tearing with repeated use.
- Work in a wide range of service temperatures.

#### Condensation Cure Products

|---|---|---|---|---|

#### Typical Moldmaking Variables

**Pattern Characteristics**
- Simple, no undercuts
- Complex, some undercuts
- Complex, deep undercuts
- Vertical surfaces, large or immovable objects

**Compatibility with Casting Materials**
- Polymers
  - Polyesters
  - Polyurethane, rigid
  - Polyurethane, foam
  - Epoxy
  - Low-melt metals

### Silicone Moldmaking Materials from Dow Corning

- Recommended  
- Can be used

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CONCENTRATION CURE

Base/Catalyst Approximate Approximate
Mixing Ratio, Working Demold

Catalyst or Curing Agent By Weight Time 1 Time 2

Dow Corning HS RTV High Strength Moldmaking Silicone Rubbers

| Dow Corning® HS II Catalyst | 20:1 Clear | 2 hrs | 24 hrs |
| 10:1 Clear | 45 min | 16 hrs |
| 10:1 Colored | 1 1/2 hrs | 18 hrs |
| 10:1 Clay | 45 min | 16 hrs |

Dow Corning® HS Sprayable Catalyst Colored/ HS II Base

| Dow Corning® HS II Catalyst | 10:1 Clear | 2 hrs | 24 hrs |
| 10:1 Colored | 2 hrs | 24 hrs |

Dow Corning® HS III Catalyst

| Dow Corning® HS Sprayable Catalyst Clear/ HS III Base | 10:1 Colored | 60 min | 16 hrs |
| Dow Corning® HS IV Catalyst | 10:1 Colored | 40 min | 24 hrs |

Dow Corning 3110, 3112 and 3120 RTV Silicone Rubbers can be used with either Dow Corning® 1 Catalyst or faster-acting Dow Corning® 4 Catalyst.

Each Silastic RTV Silicone Rubber has its own special curing agent. For best results, these products should be used at the specified mix ratios.

The chart at right can help you determine the mix ratios, working times, and cure times most compatible with your equipment capabilities and application requirements.

Once you've narrowed the field to a few materials, it's time to look at your cure options. Dow Corning HS II, HS III, and HS IV RTV High Strength Moldmaking Silicone Rubbers are available with the following catalysts:

- Clear, to allow custom coloring of the rubber.
- Colored pink, to aid inspection for uniform blending.
- HS II clay catalyst for curing against sulfur-containing clays. Colored green to aid inspection for uniform blending.
- HS sprayable catalyst colored used with HS II to allow spray application onto vertical surfaces.
- HS sprayable catalyst clear used with HS III to allow spray application onto vertical surfaces.

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The chart at right can help you determine the mix ratios, working times, and cure times most compatible with your equipment capabilities and application requirements.
When you’ve determined which products have the general performance and cure capabilities you need, review the following typical properties charts to see how these products match up with the specific properties you require.

### Typical Properties†

<table>
<thead>
<tr>
<th>Dow Corning High Strength Moldmaking Silicone Rubber</th>
<th>Dow Corning Silicone Rubber</th>
<th>Silastic Bases†</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>As Supplied</strong> Specific Gravity</td>
<td>1.12</td>
<td>1.14, 1.30, 1.45</td>
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<tr>
<td><strong>Catalyst Used</strong> Appearance</td>
<td>White</td>
<td>10:1</td>
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<tr>
<td>Viscosity, poise</td>
<td>550</td>
<td>550</td>
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<tr>
<td><strong>As-Cured Physical Properties†</strong></td>
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<td></td>
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<tr>
<td>Shore A, points</td>
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<td>37</td>
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<tr>
<td>Tensile Strength, psi</td>
<td>800</td>
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<tr>
<td>Elongation, percent</td>
<td>350</td>
<td>350</td>
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<tr>
<td>Tear Strength, die B, ppi</td>
<td>110</td>
<td>110</td>
</tr>
<tr>
<td>Linear Shrink, percent</td>
<td>Nil†</td>
<td>Nil†</td>
</tr>
</tbody>
</table>

1. Based on sample thickness of 125 mil, cured 24 hours at room temperature.
2. Shrinkage not measurable after curing 24 hours at room temperature.
3. T-2 HDCA - T-2 Base/T-2 High Durometer Curing Agent; Cure 2 hr @ 60°C (140°F)
4. T-4 0 - T-4 Base/T-4 0 Curing Agent

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### ADDITION CURE MATERIALS

<table>
<thead>
<tr>
<th>Silastic Silicone Rubber</th>
<th>E</th>
<th>J</th>
<th>L</th>
<th>M</th>
<th>M-2</th>
<th>P-1</th>
<th>S</th>
<th>S-2</th>
<th>T-2</th>
<th>T-2 HDCA†</th>
<th>T-4</th>
<th>T-4 0†</th>
<th>V</th>
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<tbody>
<tr>
<td><strong>As Supplied</strong> Specific Gravity</td>
<td>1.12</td>
<td>1.28</td>
<td>1.27</td>
<td>1.29</td>
<td>1.29</td>
<td>1.12</td>
<td>1.12</td>
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<td>1.12</td>
<td>1.09</td>
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<tr>
<td><strong>Catalyst Used</strong> Appearance</td>
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<td>Green</td>
<td>Green</td>
<td>Regal Blue</td>
<td>Regal Blue</td>
<td>Off White</td>
<td>Off White</td>
<td>Translucent</td>
<td>Translucent</td>
<td>Translucent</td>
<td>Translucent</td>
<td>Translucent</td>
<td>Purple</td>
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<td>Viscosity, poise</td>
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<td>850</td>
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<td>900</td>
<td>800</td>
<td>135</td>
<td>128</td>
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<td>550</td>
<td>550</td>
<td>350</td>
<td>350</td>
<td>190</td>
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OTHER DOW CORNING PRODUCTS FOR THE MOLDMAKING INDUSTRY.

**Dow Corning® HS II Thixo Additive.**
Clear liquid. Can be used with Dow Corning HS II, HS III, and HS IV RTV High Strength Moldmaking Silicone Rubbers and with Silastic 3498, E, P-1, S, S-2, T-2, T-4 and V Silicone Rubbers to produce skin molds on vertical surfaces or from immovable objects.

**Dow Corning® HS Sprayable Catalyst (Colored and Clear).** These catalysts can be used with Dow Corning HS II and HS III Bases. Primary uses include robotic skins and tooling.

**Dow Corning® HS Extender.**
Additive to extend the working time of condensation cure (tin cure) mold making rubbers in conditions of high temperature and humidity.

**Dow Corning® HS II Thixo Additive.**
Clear liquid. Can be used with Dow Corning HS II, HS III, and HS IV RTV High Strength Moldmaking Silicone Rubbers and with Silastic 3498, E, P-1, S, S-2, T-2, T-4 and V Silicone Rubbers to produce skin molds on vertical surfaces or from immovable objects.

**Dow Corning® HS Sprayable Catalyst (Colored and Clear).** These catalysts can be used with Dow Corning HS II and HS III Bases. Primary uses include robotic skins and tooling.

**Dow Corning® 236 RTV Dispersion.**
White; one-part coating. Used to prevent casting resins from sticking to wooden molding boxes/frames.

**Dow Corning® 200° Fluid, 50 cst.** Used as a thinner to lower mixed viscosity. Also used as a release agent.

**Dow Corning® 732 RTV Multi-purpose Sealant.** A one-part adhesive used to repair torn molds.

**Dow Corning® Q3-6559 Cure Accelerator.**
Can be used to speed up room-temperature cure of all addition-cure (platinum cure) mold making silicone rubbers and as a surface treatment to prevent inhibition. Contains a silicone polymer and platinum catalyst.

**Dow Corning® 92-009 Dispersion Coating.**
A one-part, room-temperature cure coating used for painting silicone robotic skins; easily pigmented.

**Dow Corning® 734 Flowable Sealant.**
A one-part, room-temperature cure coating used for painting silicone robotic skins; easily pigmented and diluted with solvents.

**Dow Corning® 1-2287 Siloxane.**
Cure retardant to slow down room-temperature cure of all addition cure (platinum cure) mold making silicone rubbers.

**Dow Corning® HS Extender.**
Additive to extend the working time of condensation cure (tin cure) mold making rubbers in conditions of high temperature and humidity.

**Dow Corning® OS-2 Silicone Cleaner and Surface Prep Solvent.**
Non-Ozone depleting, VOC exempt, silicone cleaner to clean plastics and metals, excellent for removing oils and uncured silicones.

**Dow Corning® Mold Life Extender, Gray.**
Gray, one-part, room-temperature cure coating sprayed or brushed onto silicone mold surface to extend life of mold.

NEED MORE INFORMATION?

For general assistance or more information about product selection, call your Dow Corning sales representative or distributor.
For technical support or moldmaking advice, call our Customer Service Department at 989-496-6000 or visit our website at www.dowcorning.com/moldmaking

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