DOW CORNING

KRAYDEN, INC.

AUTHORIZED DISTRIBUTOR

Step-By-Step Product Selection Guide

SILICONE MOLDMAKING MATERIALS FROM DOW CORNING

AMERICAS EDITION

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.

time.

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 moldmaking product from Dow Corning 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. Within each cure type, we offer 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 on the next page.

The closest thing to a reproduction from a silicone mold is the original itself.

Dow Corning makes a variety of products to meet a variety of needs:

Reproduction

- Figurines
- Collectibles
- Jewelry
- Candles
- Artifacts

Molding

- Prototypes
- Industrial tooling
- Furniture

Creating

- Silicone rubber pads for transfer printing
- Robotic skins for animated creatures

Architectural fabrication

- Concrete casting
- Reconstituted stone
- Crown molding, finials, brackets and more

STEP 1 Narrow the field to match your needs

Silicone Moldmaking Materials from Dow Corning

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

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

***Dow Corning*® HS II RTV High Strength Moldmaking Silicone Rubber.** High tear strength, medium durometer. Well-suited for one-part molds.	***Dow Corning*® 3110 RTV Silicone Rubber.** General purpose, low tear strength, medium durometer, low mixed viscosity, easy to work with, fills tiny crevices, vacuum de-airing isn't always required, white.	***Silastic*® 3496 Base.** High tear strength, low durometer, very good resistance to polyester resin, suited for reproduction of figurines.	***Silastic*® E RTV Silicone Rubber.** Good tear resistance, high durometer (hardness), long working time, high elongation, white.	***Silastic*® M-2 RTV Silicone Rubber.** High durometer, high inhibition resistance, regal blue.	***Silastic*® T-2 RTV Silicone Rubber.** Translucent/ colorless, low viscosity, low durometer, high inhibition resistance.
***Dow Corning*® HS III RTV High Strength Moldmaking Silicone Rubber.** High tear strength, low durometer. Well-suited for one-part molds.	***Dow Corning*® 3112 RTV Silicone Rubber.** General purpose, low tear strength, high durometer, white.	***Silastic*® 3497 Base.** High tear strength, low durometer, very good resistance to polyester resin, suited for reproduction of figurines.	***Silastic*® J RTV Silicone Rubber.** Good tear resistance, high durometer, green.	***Silastic*® M-3 RTV Silicone Rubber.** High durometer, fast room temperature cure, demoldable in 2 hours, regal blue.	***Silastic*® T-2 Base/T-2 High Durometer Curing Agent.** Higher durometer version of *Silastic* T-2.
***Dow Corning*® HS IV RTV High Strength Moldmaking Silicone Rubber.** High tear strength, low durometer, low mixed viscosity. Well-suited for one-part molds.	***Dow Corning*® 3120 RTV Silicone Rubber.** Low tear strength, high durometer, excellent heat stability, red.	***Silastic*® 3498 Base.** High tear strength, low durometer, very good resistance to polyester resin, suited for reproduction of figurines.	***Silastic*® L RTV Silicone Rubber.** Low durometer, soft and more flexible, good elongation, green.	***Silastic*® P-1 RTV Silicone Rubber.** High tear strength, suited for production of print pads, can be colored.	***Silastic*® T-4 RTV Silicone Rubber.** High tear strength, high durometer, translucent, suited for prototype design.
			***Silastic*® M RTV Silicone Rubber.** Medium tear resistance, high durometer, high inhibition resistance, demoldable in 16 hours, regal blue.	***Silastic*® S RTV Silicone Rubber.** High tear resistance, very low durometer, low viscosity, high inhibition resistance, high elongation.	***Silastic*® V RTV Silicone Rubber.** High tear strength, medium durometer, suited for architectural and prototype design.
				***Silastic*® S-2 RTV Silicone Rubber.** High tear resistance, low durometer and low viscosity, suited for reproduction of reconstituted stone.	

Typical Moldmaking Variables

	Condensation Cure Products									Addition Cure Products											
	Dow Corning® Silicone Rubber						*Silastic*® Silicone Rubber			*Silastic*® Silicone Rubber											
	HS II	HS III	HS IV	3110	3112	3120	3496	3497	3498	E	J	L	M	M-2	M-3	P-1	S	S-2	T-2	T-4	V
Pattern Characteristics																					
Simple, no undercuts	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Complex, some undercuts	●	●	●				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Complex, deep undercuts	●	●	●				●	●	●	●	○	●	○	○	○	●	●	●	●	●	●
Vertical surfaces, large or immovable objects	●	●	●						●	●						●	●	●	●	●	●
Compatibility with Casting Materials																					
Polyesters	●	●	●	○	○	○	●	●	●	●	○	○	○	○	○	●	●	●	○	○	○
Polyurethane, rigid	●	●	○	○	○	○	○	●	●	○	●	●	●	●	●	●	●	●	●	●	●
Polyurethane, foam	○	○		○	○	○		○	○	○	●	●	●	●	●	○	○	○	●	●	●
Epoxies				○	○	○				○	○	○	○	○	○	○	○	○	○	○	○
Low-melt metals				○	○	●				○	○	○	○	○	○	○	○	○	○	○	○

● Recommended ○ Can be used

STEP 2

Take a closer look at your cure options

	Working and Cure Times at Room Temperature (73°F, 23°C) Catalyst or Curing Agent	Base/Catalyst Mixing Ratio, By Weight	Approximate Working Time[1]	Approximate Demold Time[2]
Condensation Cure	***Dow Corning*® HS II RTV Silicone Rubber Base**			
	Silastic® 81 NW Curing Agent	20:1	1.5 – 2 hrs	24 hrs
	Silastic® 81-F NW Curing Agent	20:1	30 – 45 min	6 hrs
	Silastic® 81-R NW Curing Agent	20:1	1.5 – 2 hrs	24 hrs
	Silastic® 81-VF NW Curing Agent	20:1	8 – 10 min	2 hrs
	Dow Corning® HS Sprayable Catalyst – Colored	10:1	1 hr	16 hrs
	***Dow Corning*® HS III RTV Silicone Rubber Base**			
	Silastic® 83 NW Curing Agent	20:1	1.5 – 2 hrs	24 hrs
	Dow Corning® HS Sprayable Catalyst – Clear	10:1	1 hr	16 hrs
	***Dow Corning*® HS IV RTV Silicone Rubber Base**			
	Dow Corning® HS IV 10:1 Colored Catalyst	10:1	1 hr	24 hrs
	***Dow Corning*® 3110 Silicone Rubber**			
	Dow Corning® S Tin NW Catalyst	10:1[3]	2 hrs	7 hrs
	Dow Corning® 4 Catalyst	100:1[3]	3 min	10 min
	***Dow Corning*® 3112 Silicone Rubber**			
	Dow Corning® S Tin NW Catalyst	10:1[3]	1 hr	8 hrs
	Dow Corning® 4 Catalyst	100:1[3]	2 min	10 min
	***Dow Corning*® 3120 Silicone Rubber**			
	Dow Corning® S Tin NW Catalyst	10:1[3]	1 hr	8 hrs
	Dow Corning® 4 Catalyst	100:1[3]	2 min	10 min
	***Silastic*® 3496 Base**			
	Silastic® 81 NW Curing Agent	20:1	2 – 3 hrs	24 hrs
	Silastic® 81-F NW Curing Agent	20:1	1 – 1.5 hrs	8 hrs
	Silastic® 81-R NW Curing Agent	20:1	2 – 3 hrs	24 hrs
	***Silastic*® 3497 Base**			
	Silastic® 81 NW Curing Agent	20:1	2 – 3 hrs	24 hrs
	Silastic® 81-F NW Curing Agent	20:1	1 – 1.5 hrs	8 hrs
	Silastic® 81-R NW Curing Agent	20:1	2 – 3 hrs	24 hrs
	***Silastic*® 3498 Base**			
	Silastic® 81 NW Curing Agent	20:1	2 – 3 hrs	24 hrs
	Silastic® 81-F NW Curing Agent	20:1	1 – 1.5 hrs	8 hrs
	Silastic® 81-R NW Curing Agent	20:1	2 – 3 hrs	24 hrs
Addition Cure	***Silastic*® Silicone Rubbers**			
	Silastic® E Base and Curing Agent	10:1	2 hrs	24 hrs
	Silastic® J Base and Curing Agent	10:1	2 hrs	24 hrs
	Silastic® L Base and Curing Agent	10:1	2.5 hrs	24 hrs
	Silastic® M Base and Curing Agent	10:1	1.5 hrs	16 hrs
	Silastic® M-2 Base and Curing Agent	10:1	1.5 hrs	4–5 hrs
	Silastic® M-3 Base and Curing Agent	10:1	20 min	2 hrs
	Silastic® P-1 Base and Curing Agent	10:1	45 min	8 hrs
	Silastic® S Base and Curing Agent	10:1	45 min	7 hrs
	Silastic® S-2 Base and Curing Agent	10:1	1 hr	6–8 hrs
	Silastic® T-2 Base and Curing Agent	10:1	1 hr	10 hrs
	Silastic® T-2 Base and High Durometer Curing Agent	10:1	1 hr	12 hrs
	Silastic® T-4 Base and Curing Agent	10:1	1.5 hrs	12 hrs
	Silastic® T-4 O Base and Curing Agent	10:1	1.5 hrs	12 hrs
	Silastic® V Base and Curing Agent	10:1	1 – 1.5 hrs	6–8 hrs

[1] The time it takes for the catalyzed mixture to become nonflowable. [2] The point at which the rubber can be demolded.
[3] Refer to data sheet for off-ratio mixing that can result in adjusted working times.
These technical characteristics are typical properties. These values are not intended for use in preparing specifications.

Once you've narrowed the field to a few materials, it's time to look at your cure options. *Dow Corning*® RTV high strength moldmaking silicone rubbers are available with a variety of curing agents to modify working and demold times. For unique conditions we offer:

- *Silastic*® 81-F NW curing agent for curing against sulfur-containing clays
- *Dow Corning*® HS sprayable catalyst – colored used with Dow Corning HS II to allow spray application onto vertical surfaces
- *Dow Corning*® HS sprayable catalyst – clear used with Dow Corning HS III to allow spray application onto vertical surfaces

Each *Silastic*® RTV addition cure silicone rubber base has its own special curing agent. For best results, these products should be used at the specified mix ratios. The chart at left can help you determine the mix ratios, working times and cure times most compatible with your equipment capabilities and application requirements.

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STEP 3 Focus on your specific performance objectives

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† Condensation Cure Materials

	Dow Corning® Silicone Rubber											*Silastic*® Silicone Rubber		
	HS II					HS III		HS IV	3110	3112	3120	3496[2]	3497[2]	3498[2]
As Supplied														
Specific Gravity	1.21					1.16		1.16	1.14	1.30	1.45	1.16	1.21	1.23
Catalyst Used	81-NW	81-F NW	81-R NW	81-VF NW	HS Sprayable Colored	83 NW	HS Sprayable Clear	10:1 Colored	S Tin NW[3]	S Tin NW[3]	S Tin NW[3]	81-R NW[3]	81-R NW[3]	81 NW[3]
As Catalyzed														
Appearance	Off White	Off White	Off White	Off White	Purple	White	White	Pink	White	White	Red	Off White	Off White	Light Beige
Viscosity, poise	200	221	200	364	–	160	–	150	130	280	280	146	162	147
As-Cured Physical Properties[1]														
Durometer Hardness, Shore A, points Shore 00, points	24 –	23 –	19 –	25 –	22	13 –	10 55	5 50	45 –	58 –	56 –	12	18	28
Tensile Strength, psi	682	667	667	595	550	566	380	436	395	640	582	580	609	711
Elongation, percent	544	543	622	438	480	680	640	731	170	127	128	765	582	537
Tear Strength, die B, ppi	148	137	148	143	120	143	110	110	24	35	40	154	154	171
Linear Shrink, percent after 7 days @ 77°F (25°C)	0.2-0.4	0.2-0.4	0.2-0.4	0.2-0.4	–	0.2-0.4	–	0.3	0.83	0.87	0.91	0.2-0.4	0.2-0.4	0.2-0.4

† These values are not intended for use in preparing specifications.
[1] Based on sample thickness of 125 mils, cured 24 hours at room temperature. [2] Cured for 7 days @ 73°F (23°C). [3] See data sheet for additional catalyst options.

Typical Properties† Addition Cure Materials

	Silastic® Silicone Rubber													
	E	J	L	M	M-2	M-3	P-1	S	S-2	T-2	T-2 HDCA[3]	T-4	T-4 O[4]	V
As Supplied														
Specific Gravity	1.12	1.28	1.27	1.29	1.29	1.29	1.12	1.12	1.13	1.12	1.12	1.1	1.1	1.35
As Catalyzed														
Appearance	White	Green	Green	Regal Blue	Regal Blue	Regal Blue	Off White	Green	Off White	Translucent	Translucent	Translucent	Translucent	Purple
Viscosity, poise	550	900	925	900	660	700	135	128	90	550	550	350	350	190
As-Cured Physical Properties[1]														
Durometer Hardness, Shore A, points	35	56	35	59	59	62	25	26	20	42	47-53	40	40	38
Tensile Strength, psi	800	900	550	650	700	650	1087	1000	913	800	800-1000	971	942	913
Elongation, percent	350	250	350	250	200	240	850	900	600	300	250	400	375	500
Tear Strength, die B, ppi	110	90	60	90	85	80	131	140	131	120	130-140	150	180	182
Linear Shrink, percent														
After 24 hrs @ 77°F (25°C)	Nil[2]	Nil[2]	Nil[2]	Nil[2]	Nil[2]	Nil[2]	Nil[2]	Nil[2]	Nil[2]	Nil[2]	Nil[2]	Nil[2]	Nil[2]	Nil[2]
After 7 days @ 77°F (25°C)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

† These values are not intended for use in preparing specifications. [1] Based on sample thickness of 125 mils, 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 hrs @ 60°C (140°F). [4] T-4 O — T-4 Base/T-4 O Curing Agent.

Other Dow Corning products
for the moldmaking industry.

***Dow Corning*® 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*® 3-6559 Cure Accelerator:** Can be used to speed up room-temperature cure of all addition cure (platinum cure) moldmaking silicone rubbers and as a surface treatment to prevent inhibition. Contains a silicone polymer and platinum catalyst.

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

Silicone Oil (PDMS) 50 cSt: This product can be used as a thinner to lower mixed viscosity and also to adjust the hardness of the cured silicone. It can also be used as a release agent. Users must conduct their own trials to establish the optimum silicone oil viscosity and amount to meet their specific need.

***Dow Corning*® 732 RTV Multipurpose Sealant:** A one-part room-temperature cure adhesive used to repair torn molds.

***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*® HS Extender:** Additive to extend the working time of condensation cure (tin cure) moldmaking 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:** One-part room-temperature cure coating sprayed or brushed onto silicone mold surface to extend life of mold.

Dow Corning offers a variety of additional products designed specifically for complex moldmaking applications. For assistance in selecting the right products, contact your Dow Corning representative.

How to Contact Us

For general assistance or more information about product selection, call your Dow Corning sales representative or distributor. For technical support or moldmaking advice, call one of our primary locations or visit our website at dowcorning.com/moldmaking.

Your Global Connection

Dow Corning's worldwide network of offices offers global accessibility. Visit dowcorning.com/ContactUs or call your local Dow Corning moldmaking expert.

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