

S I L I C O N E

MOLDMAKING

WOTDWAQING

M A T E R I A L S
F R O M
D O W C O R N I N G

*A step-by-step guide
to product selection*

DOW CORNING

S I L I C O N E

MOLDMAKING

MOLDMAKING

MATERIALS FROM DOW CORNING

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.

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 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

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. Highest tear strength, low durometer (hardness). 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/96 Curing Agent. High tear strength, lowest durometer, very good resistance to polyester resin, suited for reproduction of figurines.

Silastic® E RTV Silicone Rubber. Good tear resistance, low durometer (hardness), long working time, high elongation, white.

Silastic® M-2 RTV Silicone Rubber. Highest durometer, highest inhibition resistance, regal blue.

Silastic® T-2 RTV Silicone Rubber. Translucent/colorless, medium/low viscosity, low durometer, high inhibition resistance.

Dow Corning® HS III RTV High Strength Moldmaking Silicone Rubber. High tear strength, lower durometer. Well-suited for one-part molds.

Dow Corning® 3112 RTV Silicone Rubber. General purpose, low tear strength, high durometer, white.

Silastic® 3497 Base/96 Curing Agent. High tear strength, lower durometer, very good resistance to polyester resin, suited for reproduction of figurines.

Silastic® J RTV Silicone Rubber. Good tear resistance, high durometer, green.

Silastic® P-1 RTV Silicone Rubber. High tear strength, suited for production of print pads, can be colored.

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, lowest durometer, lowest 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/98 Curing Agent. 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® S RTV Silicone Rubber. High tear resistance, very low durometer, low viscosity, high inhibition resistance, highest elongation.

Silastic® T-4 RTV Silicone Rubber. High tear strength, translucent, suited for prototype design.

Silastic® M RTV Silicone Rubber. Good tear resistance, highest durometer, good inhibition resistance, demoldable in 16 hours, regal blue.

Silastic® S-2 RTV Silicone Rubber. High tear, lowest durometer and mixed viscosity, suited for reproduction of reconstituted stone.

Silastic® V RTV Silicone Rubber. High tear strength, medium durometer, suited for architectural and prototype design.

Typical Moldmaking Variables

CONDENSATION CURE PRODUCTS

ADDITION CURE PRODUCTS

Dow Corning Silicone Rubber

HS II HS III HS IV 3110 3112 3120

Silastic

3496 3497 3498

Silastic Silicone Rubber

E J L M M-2 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
Epoxy
Low-melt metals

Simple, no undercuts	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Complex, some undercuts	●	●	●				●	●	●	●	●	●	●	●	●	●	●	●	●	●
Complex, deep undercuts	●	●	●				●	●	●	●	○	●	○	○	●	●	●	●	●	●
Vertical surfaces, large or immovable objects	●	●	●						●	●					●	●	●	●	●	●
Polyesters	●	●	●	○	○	○	●	●	●	●	○	○	○	○	●	●	●	○	○	○
Polyurethane, rigid	●	●	○	○	○	○	○	●	●	○	●	●	●	●	●	●	●	●	●	●
Polyurethane, foam	○	○		○	○	○		○	○	○	●	●	●	●	○	○	○	●	●	●
Epoxy				○	○	○				○	○	○	○	○	○	○	○	○	○	○
Low-melt metals				○	○	●				○	○	○	○	○	○	○	○	○	○	○

● Recommended

○ Can be used

STEP 2

TAKE A CLOSER LOOK AT YOUR CURE OPTIONS.

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.

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.

Working and Cure Times at RT (72 ± 2°F, 23°C)

Catalyst or Curing Agent	Base/Catalyst Mixing Ratio, By Weight	Approximate Working Time ¹	Approximate Demold Time ²	
<i>Dow Corning</i> HS RTV High Strength Moldmaking Silicone Rubbers				
<i>Dow Corning</i> ® 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	
<i>Dow Corning</i> ® HS Sprayable Catalyst Colored/HS II Base	10:1	60 min	16 hrs	
<i>Dow Corning</i> ® HS III Catalyst	10:1 Clear	2 hrs	24 hrs	
	10:1 Colored	2 hrs	24 hrs	
<i>Dow Corning</i> ® HS Sprayable Catalyst Clear/HS III Base	10:1	60 min	16 hrs	
	<i>Dow Corning</i> ® HS IV Catalyst	10:1 Colored	40 min	24 hrs
<i>Dow Corning</i> 3110 Silicone Rubber				
<i>Dow Corning</i> ® 1 Catalyst	5:1	1 hr	5 hrs	
	10:1	2 hrs	7 hrs	
	20:1	3 hrs	12 hrs	
<i>Dow Corning</i> ® 4 Catalyst	100:1	3 min	10 min	
	200:1	5 min	20 min	
	400:1	20 min	2 hrs	
<i>Dow Corning</i> 3112 Silicone Rubber				
<i>Dow Corning</i> 1 Catalyst	5:1	1/2 hr	6 hrs	
	10:1	1 hr	8 hrs	
	20:1	2 hrs	12 hrs	
<i>Dow Corning</i> 4 Catalyst	100:1	2 min	10 min	
	200:1	5 min	20 min	
	400:1	15 min	1-1/2 hrs	
<i>Dow Corning</i> 3120 Silicone Rubber				
<i>Dow Corning</i> 1 Catalyst	5:1	1/2 hr	6 hrs	
	10:1	1 hr	8 hrs	
	20:1	2 hrs	12 hrs	
<i>Dow Corning</i> 4 Catalyst	100:1	2 min	10 min	
	200:1	5 min	1-1/2 hrs	
	400:1	15 min	2-1/2 hrs	
<i>Silastic</i> ® 96 Curing Agent/ <i>Silastic</i> ® 3496 Base	10:1	2 hrs	24 hrs	
	<i>Silastic</i> ® 96 Curing Agent/ <i>Silastic</i> ® 3497 Base	10:1	1 3/4 hrs	24 hrs
		10:1	2 hrs	24 hrs
<i>Silastic</i> ® 98 Curing Agent/ <i>Silastic</i> ® 3498 Base	10:1	2 hrs	24 hrs	
	<i>Silastic</i> Silicone Rubbers			
	<i>Silastic</i> ® E Curing Agent	10:1	1-1/2 hrs	24 hrs
<i>Silastic</i> ® J Curing Agent	10:1	2 hrs	24 hrs	
<i>Silastic</i> ® L Curing Agent	10:1	1 hr	24 hrs	
<i>Silastic</i> ® M Curing Agent	10:1	1-1/2 hrs	16 hrs	
<i>Silastic</i> ® M-2 Curing Agent	10:1	1-1/2 hrs	6-8 hrs	
<i>Silastic</i> ® P-1 Curing Agent	10:1	45 min	8 hrs	
<i>Silastic</i> ® S Curing Agent	10:1	45 min	7 hrs	
<i>Silastic</i> ® S-2 Curing Agent	10:1	1 hr	6-8 hrs	
<i>Silastic</i> ® T-2 Curing Agent	10:1	2-1/2 hrs	10 hrs	
<i>Silastic</i> ® T-2 High Durometer Curing Agent	10:1	1 hr	12 hrs	
	<i>Silastic</i> ® T-4 Curing Agent	10:1	1-1/2 hrs	12 hrs
	<i>Silastic</i> ® T-4 0 Curing Agent	10:1	1-1/2 hrs	12 hrs
<i>Silastic</i> ® V Curing Agent	10:1	60-90 min	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.

S T E P 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[†]

	ADDITION CURE MATERIALS													
	Silastic Silicone Rubber													
	E	J	L	M	M-2	P-1	S	S-2	T-2	T-2 HDCA ³	T-4	T-4 0 ⁴	V	
As Supplied														
Specific Gravity	1.12	1.28	1.27	1.29	1.29	1.12	1.12	1.13	1.12	1.12	1.09	1.09	1.35	
As Catalyzed														
Appearance	White	Green	Green	Regal Blue	Regal Blue	Off White	Green	Off White	Translucent	Translucent	Translucent	Translucent	Purple	
Viscosity, poise	550	850	1000	900	800	135	128	90	550	550	350	350	190	
As-Cured Physical Properties¹														
Durometer Hardness, Shore A, points	37	56	34	59	59	25	26	20	42	50	40	40	38-40	
Tensile Strength, psi	800	900	550	650	650	1,080	1000	910	800	900	970	940	910	
Elongation, percent	350	250	350	250	200	850	900	600	300	250	400	375	500	
Tear Strength, die B, ppi	110	90	50	90	85	130	140	130	120	135	150	180	180	
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	
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	

[†] 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 hr @ 60°C (140°F)

⁴ T-4 0 - T-4 Base/T-4 0 Curing Agent

Typical Properties[†]

	CONDENSATION CURE MATERIALS														
	Dow Corning High Strength Moldmaking Silicone Rubber									Dow Corning Silicone Rubber			Silastic Bases ²		
	HS II					HS III			HS IV	3110	3112	3120	3496	3497	3498
As Supplied															
Specific Gravity	1.21					1.16			1.16	1.14	1.30	1.45	1.14	1.20	1.22
Catalyst Used	10:1	20:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1
	Clear	Clear	Colored	Clay	HS Sprayable Colored	Clear	Colored	HS Sprayable Clear	Colored	1 Catalyst	1 Catalyst	1 Catalyst	96 Curing Agent	96 Curing Agent	98 Curing Agent
As Catalyzed															
Appearance	White	White	Pink	Green	Purple	White	Pink	White	Pink	White	White	Red	Purple	Purple	Purple
Viscosity, poise	200	200	200	200	—	160	150	—	170	140	280	280	112	155	124
As-Cured Physical Properties¹															
Durometer Hardness, Shore A, points	20	20	16	22	22	10	10	10	5	45	60	60	10	18	27
Shore 00, points	—	—	—	—	—	56	55	55	52	—	—	—	—	—	—
Tensile Strength, psi	400	600	550	450	550	350	400	380	350	400	700	900	430	520	530
Elongation, percent	325	500	500	325	480	550	575	640	675	175	130	120	490	480	310
Tear Strength, die B, ppi	125	140	130	120	120	100	110	110	100	20	30	40	120	140	140
Linear Shrink, percent															
After 24 hrs @ 77°F (25°C)	.20	.20	.26	.21	—	.23	.20	—	0.14	—	—	—	—	—	—
After 7 days @ 77°F (25°C)	.40	.30	.48	.40	—	.48	.48	—	0.3	—	—	—	.4	.4	.7

[†] 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)

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® 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® 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® 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

DOW CORNING

*We help you
invent the future.™*

www.dowcorning.com

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