

Step-By-Step Product Selection Guide

Silicone Moldmaking Materials | Americas Edition

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 the XIAMETER[®] brand, you can create tough-but-flexible molds to reproduce intricate details and deliver high-quality replicas, again and again.

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 XIAMETER[®] moldmaking 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. 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.

XIAMETER brand makes a variety of products to meet a variety of needs:

Reproduction

- Figurines
- Jewelry
- Artifacts
- Collectibles
- Candles

Creating

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

Molding

- Prototypes
- Furniture
- Industrial tooling

Architectural fabrication

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

XIAMETER® Silicone Moldmaking Materials

- 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 XIAMETER® Brand Silicone Rubbers <ul style="list-style-type: none"> • 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 XIAMETER® Brand Silicone Rubbers <ul style="list-style-type: none"> • 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 		
HS II M. High tear strength, medium durometer. Well-suited for one-part molds.	RTV-3110 Base. 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.	RTV-3496 Base. High tear strength, low durometer, very good resistance to polyester resin, suited for reproduction of figurines.	RTV-4230-E Kit. Good tear resistance, high durometer (hardness), long working time, high elongation, white.	RTV-4133-M2 Kit. High durometer, high inhibition resistance, regal blue.	RTV-4232-T2 Kit. Translucent/colorless, low viscosity, medium durometer, high inhibition resistance.
HS III M. High tear strength, low durometer. Well-suited for one-part molds.	RTV-3112 Base. General purpose, low tear strength, high durometer, white.	RTV-3497 Base. High tear strength, low durometer, very good resistance to polyester resin, suited for reproduction of figurines.	RTV-4130-J Base. Good tear resistance, high durometer, green.	RTV-4133-M-3 Base. Rubber. High durometer, fast room temperature cure, demoldable in 2 hours, regal blue.	RTV-4232-T2 Base/RTV-4232-T2 HD Curing Agent. Higher durometer version of XIAMETER® RTV-4232-T2.
	RTV-3120 Base. Low tear strength, high durometer, excellent heat stability, red.	RTV-3498 Base. High tear strength, low durometer, very good resistance to polyester resin, suited for reproduction of figurines.	RTV-4135-L Base. Low durometer, soft and more flexible, good elongation, green.	RTV-4131-P1 Kit. Rubber. High tear strength, suited for production of print pads, can be colored.	RTV-4234-T4 Kit. High tear strength, high durometer, translucent, suited for prototype design.
			RTV-4136-M Base. Medium tear resistance, high durometer, high inhibition resistance, demoldable in 16 hours, regal blue.	RTV-4250-S Base. Rubber. High tear resistance, very low durometer, low viscosity, high inhibition resistance, high elongation.	RTV-4260-V Kit. High tear strength, high durometer, suited for architectural and prototype design.
				RTV-4251-S2 Kit. Rubber. High tear resistance, low durometer and low viscosity, suited for reproduction of reconstituted stone.	

Typical Moldmaking Variables

	Condensation Cure Products									Addition Cure Products										
	XIAMETER® Silicone Rubber																			
	HS II M	HS III M	RTV- 3110	RTV- 3112	RTV- 3120	RTV- 3496	RTV- 3497	RTV- 3498	RTV- 4230- E	RTV- 4130- J	RTV- 4135- L	RTV- 4136- M	RTV- 4133- M2	RTV- 4133- M3	RTV- 4131- P1	RTV- 4250- S	RTV- 4251- S2	RTV- 4232- T2	RTV- 4234- T4	RTV- 4260- 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

	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	XIAMETER® HS II M			
	XIAMETER® RTV-3081 Curing Agent	20:1	1.5 – 2 hrs	24 hrs
	XIAMETER® RTV-3081-F Curing Agent	20:1	30 – 45 min	6 hrs
	XIAMETER® RTV-3081-R Curing Agent	20:1	1.5 – 2 hrs	24 hrs
	XIAMETER® RTV-3081-VF Curing Agent	20:1	8 – 10 min	2 hrs
	XIAMETER® HS III M			
	XIAMETER® RTV-3083 Curing Agent	20:1	1.5 – 2 hrs	24 hrs
	XIAMETER® RTV-3110 Base			
	XIAMETER® RTV-3010-S Catalyst	10:1 ³	2 hrs	7 hrs
	<i>Dow Corning® 4 Catalyst</i> ^Δ	100:1 ³	3 min	10 min
	XIAMETER® RTV-3112 Base			
	XIAMETER® RTV-3010-S Catalyst	10:1 ³	1 hr	8 hrs
	<i>Dow Corning® 4 Catalyst</i> ^Δ	100:1 ³	2 min	10 min
	XIAMETER® RTV-3120 Base			
	XIAMETER® RTV-3010-S Catalyst	10:1 ³	1 hr	8 hrs
	<i>Dow Corning® 4 Catalyst</i> ^Δ	100:1 ³	2 min	10 min
	XIAMETER® RTV-3496 Base			
	XIAMETER® RTV-3081 Curing Agent	20:1	2 – 3 hrs	24 hrs
	XIAMETER® RTV-3081-F Curing Agent	20:1	1 – 1.5 hrs	8 hrs
	XIAMETER® RTV-3081-R Curing Agent	20:1	2 – 3 hrs	24 hrs
	XIAMETER® RTV-3497 Base			
	XIAMETER® RTV-3081 Curing Agent	20:1	2 – 3 hrs	24 hrs
	XIAMETER® RTV-3081-F Curing Agent	20:1	1 – 1.5 hrs	8 hrs
	XIAMETER® RTV-3081-R Curing Agent	20:1	2 – 3 hrs	24 hrs
XIAMETER® RTV-3498 Base				
XIAMETER® RTV-3081 Curing Agent	20:1	2 – 3 hrs	24 hrs	
XIAMETER® RTV-3081-F Curing Agent	20:1	1 – 1.5 hrs	8 hrs	
XIAMETER® RTV-3081-R Curing Agent	20:1	2 – 3 hrs	24 hrs	
Addition Cure	XIAMETER® Silicone Rubbers			
	XIAMETER® RTV-4230-E Base and Curing Agent	10:1	2 hrs	24 hrs
	XIAMETER® RTV-4130-J Base and Curing Agent	10:1	2 hrs	24 hrs
	XIAMETER® RTV-4135-L Base and Curing Agent	10:1	2.5 hrs	24 hrs
	XIAMETER® RTV-4136-M Base and Curing Agent	10:1	1.5 hrs	16 hrs
	XIAMETER® RTV-4133-M2 Base and Curing Agent	10:1	1.5 hrs	4-5 hrs
	XIAMETER® RTV-4133-M3 Base and Curing Agent	10:1	20 min	2 hrs
	XIAMETER® RTV-4131-P1 Base and Curing Agent	10:1	45 min	8 hrs
	XIAMETER® RTV-4250-S Base and Green Curing Agent	10:1	45 min	7 hrs
	XIAMETER® RTV-4251-S2 Kit	10:1	1 hr	6 – 8 hrs
	XIAMETER® RTV-4232-T2 Base and Curing Agent	10:1	1 hr	10 hrs
	XIAMETER® RTV-4232-T2 Base and HD Curing Agent	10:1	1 hr	12 hrs
	XIAMETER® RTV-4234-T4 Base and Curing Agent	10:1	1.5 hrs	12 hrs
	XIAMETER® RTV-4234-T4 Base and O Curing Agent	10:1	1.5 hrs	12 hrs
XIAMETER® RTV-4260-V Kit	10:1	1 – 1.5 hrs	6-8 hrs	

Once you've narrowed the field to a few materials, it's time to look at your cure options. XIAMETER® 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:

- XIAMETER® RTV-3081-F curing agent for curing against sulfur-containing clays

Each XIAMETER® 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.

^Δ While this product is a Dow Corning® brand product, it is sold via the XIAMETER® Web-enabled business model from Dow Corning.

Visit www.xiameter.com to order these products or to learn more.

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.

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

	XIAMETER [®] Silicone Rubber										
	HS II M				HS III M	RTV-3110	RTV-3112	RTV-3120	RTV-3496 ²	RTV-3497 ²	RTV-3498 ²
As Supplied											
Specific Gravity	1.21				1.16	1.14	1.30	1.45	1.16	1.21	1.23
Curing Agent Used	RTV-3081	RTV-3081-F	RTV-3081-R	RTV-3081-VF	RTV-3083	RTV-3010-S ³	RTV-3010-S ³	RTV-3010-S ³	RTV-3081-R ³	RTV-3081-R ³	RTV-3081 ³
As Catalyzed											
Appearance	Off White	Off White	Off White	Off White	White	White	White	Red	Off White	Off White	Light Beige
Viscosity, poise	200	221	200	364	160	130	280	280	146	162	147
As-Cured Physical Properties¹											
Durometer Hardness, Shore A, points	24	23	19	25	13	45	58	56	12	18	28
Shore 00, points	—	—	—	—	—	—	—	—	—	—	—
Tensile Strength, psi	682	667	667	595	566	395	640	582	580	609	711
Elongation, percent	544	543	622	438	680	170	127	128	765	582	537
Tear Strength die B, ppl	148	137	148	143	143	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	0.83	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.

STEP 3

Focus on your specific performance objectives

Typical Properties† Addition Cure Materials

	XIAMETER® Silicone Rubber													
	RTV-4230-E	RTV-4130-J	RTV-4135-L	RTV-4136-M	RTV-4133-M2	RTV-4133-M3	RTV-4131-P1	RTV-4250-S	RTV-4251-S2	RTV-4232-T2	RTV-4232-T2 HDCA ³	RTV-4234-T4	RTV-4234-T4 O ⁴	RTV-4260-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	Trans-lucent	Trans-lucent	Trans-lucent	Trans-lucent	Purple
Viscosity, poise	550	900	925	900	660	700	135	128	90	550	550	350	350	190
As-Cured Physical Properties¹														
Durometer Hardness, Shore A, points	35	56	35	59	59	62	25	26	20	42	47-53	40	40	38
Tensile Strength, MPa	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, N/mm	110	90	60	90	85	80	131	140	131	120	130-140	150	180	182
Linear Shrink, percent														
After 24 hrs @ 25°C (77°F)	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 @ 25°C (77°F)	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 RTV-4232-T2 HDCA — RTV-4232-T2 Base/RTV-4232-T2 High Durometer Curing Agent; Cure 2 hrs @ 60°C (140°F).

⁴ RTV-4234-T4 O — RTV-4234-T4 Base/RTV-4234-T4 O Curing Agent.

Other *Dow Corning*[®] and XIAMETER[®] products for the moldmaking industry

Two brands to serve you

Whether you need industry-leading innovation or greater cost efficiency, Dow Corning can help. Dow Corning[®] brand solutions are dedicated to meeting your needs for specialty materials, collaborative problem-solving and innovation support. Learn how we can help you at dowcorning.com.

If you need to buy high-quality, standard silicone materials at market-based prices, we can help you achieve that through our web-enabled XIAMETER[®] brand and business model. Learn more at www.xiameter.com.

***Dow Corning*[®] 236 RTV Dispersion:**

White, one-part room-temperature cure coating. Used to prevent casting resins from sticking to wooden molding boxes/frames.

***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*[®] 732 Multipurpose^Δ:**

A one-part room-temperature cure adhesive used to repair torn molds.

***Dow Corning*[®] 734 Flowable^Δ:**

A one-part room-temperature cure coating used for painting silicone robotic skins; easily pigmented and diluted with solvents.

***Dow Corning*[®] 92-009 Dispersion Coating:**

A one-part, room-temperature cure coating used for painting silicone robotic skins; easily pigmented.

***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*[®] Mold Life Extender, Gray:**

One-part room-temperature cure coating sprayed or brushed onto silicone mold surface to extend life of mold.

***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.

XIAMETER[®] PMX-200 Silicone Fluid 50CS:

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.

XIAMETER[®] RTV-3011 Thixo Additive:

Clear liquid. Can be used with XIAMETER[®] HS II M, HS III M, RTV-3498, RTV-4230-E, RTV-4131-P1, RTV-4250-S, RTV-4251-S2, RTV-4232-T2, RTV-4234-T4 and RTV-4260-V silicone rubbers to produce skin molds on vertical surfaces or from immovable objects.

^Δ While this product is a Dow Corning[®] brand product, it is sold via the XIAMETER[®] Web-enabled business model from Dow Corning. Visit www.xiameter.com to order these products or to learn more.

Contact Us

Visit www.xiameter.com to learn more about the many product options available to you from the XIAMETER® brand.

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Form No. 95-1034-01

