

SIL-MOLD™ SI-30

Description

Sil-Mold™ is a two component, addition cure, room temperature or heat accelerated cure silicone rubber compound. It is designed as a **variable hardness rubber** with high strength properties, long library life, excellent detail reproduction, excellent release characteristics, and improved resistance to inhibition. The specific hardness is dependent on which curing agent is used. Sil-Mold™ is an excellent choice for pattern shop, model shop, and Stereolithography service bureau mold making and tooling applications.

Applications

- Conventional production and prototype molds
- Finished rubber parts
- Stereolithography (SLA) molds

Typical Properties

TYPICAL PROPERTIES-AS SUPPLIED		TYPICAL CATALYZED PROPERTIES	
Part A – Base Component		Mixed at 75°F (24°C) and 50% R.H.	
• Color	Beige	• Mix Ratio , A:B (Parts by weight)	10:1
• Consistency	Pourable	• Viscosity , cP. (mPa.s)	10,000
• Viscosity , cP. (mPa.s)	20,000	• Pot Life ⁽¹⁾ , min.	100
Part B – Curing Agent		• Coverage , in ³ /lb. (cc/kg)	769 (21.3)
• Color	CA-35 Blue	• Temperature Range , °F (°C)	-65 to 400 (-54 to 204)
	CA-45 Blue		

TYPICAL PROPERTIES OF CURED RUBBER, Cured 24 hours at 75°F (24°C) and 50% RH			
Property	Test Method	CA-35	CA-45
• Color		Blue	Blue
• Specific Gravity		1.3	1.3
• Hardness (Shore A)	ASTM D2240	25	33
• Tensile Strength , psi (N/mm ²)	ASTM D412	640 (4.4)	650 (4.5)
• Elongation (%)	ASTM D412	510	500
• Tear Resistance , ppi (N/mm)	ASTM D624, Die B	180 (31.6)	170 (29.8)
NOTE: SI-30 cure time may be accelerated by oven curing at 120-150°F (49-65°C) for 2-3 hours. HEAT CURING WILL EFFECT PHYSICAL PROPERTIES			

(1) Time at which material gels.

Please note: The typical properties listed in this bulletin are not intended for use in preparing specifications for any particular application of Sil-Mold™ silicone materials. Please contact our Technical Service Department for assistance in writing specifications.

Instructions for Use

- (1) Stir the base (Part A) well before use (except when machine dispensing).
- (2) Shake the catalyst container (Part B) well before use.
- (3) Weigh the desired amount of base into a clean mixing container. Tip the container and roll the base all the way around the side wall up to two inches from the top. This will prevent the catalyst from becoming absorbed into the container. It is recommended that the container be filled to not more than 1/3 the container depth to allow sufficient room for expansion during the deaeration procedure.
- (4) Weigh the proper amount of catalyst into the container. Mix the base and catalyst together by stirring with a stiff, flat ended metal spatula until a uniform color is obtained. Scrape the container walls and bottom well to insure a thorough mix.



Instructions for Use (cont.)

- (5) Place the container into a vacuum chamber and evacuate the entrapped air from the mixture using a vacuum pump capable of achieving 29 inches of mercury vacuum. The mixture will rise, crest and then collapse in the container. Interruption (bumping) of the vacuum may be necessary to prevent overflowing the container. Keep the mixture under full vacuum for 2-3 minutes after the material has receded in the container.
- (6) Bleed air slowly into the vacuum chamber. When the chamber is at atmospheric equilibrium, remove the cover plate and take out the container.
- (7) Pour the desired material slowly in a steady stream from one end of the mold box so that the material flows evenly over the pattern. This should minimize entrapment of air bubbles under the flowing material. A "print" coat may be poured first over the pattern which will also help reduce the possibility of entrapping air on the pattern and in the cured rubber. A mold release (petroleum jelly) may be applied on the pattern first to improve release.
- (8) Allow the rubber to cure for 16-24 hours at 75±5°F (24°C) before removing the cured rubber mold from the pattern. Heat acceleration is not recommended with this product.
- (9) For best results, allow the mold to air cure an additional 24 hours before using it in production. Full cure is achieved in 3-7 days.
- (10) Contact PUMA Polymers Technical Service Department for recommendations on bonding to wood or metals.

PROCESSING INFORMATION

CATALYZED PROCESSING PROPERTIES ARE AFFECTED BY TEMPERATURE AND HUMIDITY VARIATION

- (1) For best results, mix and cure the material at 75°F (24°C) and 50% relative humidity.
- (2) Higher Temperature and humidity will decrease the work life and pot life of the material. The faster cure will also affect the flow properties. Refrigeration of the base prior to use in hot environments has shown to improve the handling properties of this material.
- (3) Lower temperatures and humidity will increase the work life and pot life of the material. The slower cure will increase the flow time. Cure temperatures below 68°F (20°C) are not recommended and have been found to cause a reduction in final cure hardness and properties.
- (4) It is important that the catalyst containers are tightly closed after use. Catalyst exposed to air for extended periods of time will hydrolyze (cure). An indication of hydrolysis is a film or crust formation on the surface of the catalyst. The use of hydrolyzed catalyst is not recommended and may cause incomplete cure.

Storage and Shelf Life

Sil-Mold™ SI-30 when stored in its original unopened packaging, at a temperature of 75°F (24°C), may be stored for 24 months from the date of manufacture. Beyond this date, PUMA Polymers no longer guarantees that the product meets the sales specifications.

Safety

Please read the container labels for Sil-Mold™ SI-30 or consult the Material Safety Data Sheet (MSDS) before handling for safe use, physical and health hazard information. The curing agent for this material can generate a flammable gas upon contact with acidic, basic, or oxidizing materials. The MSDS is not included with the product packaging, but can be obtained by contacting PUMA Polymers at 877-744-0499 or contact your PUMA Polymers Territory Sales Manager.

Packaging

Sil-Mold™ SI-30 is available in 5-1/2 Gallon and 55 Gallon Kits.

The conditions for your use and application of our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations, are beyond our control. Therefore, it is imperative that you test our products, technical assistance and information to determine to your own satisfaction whether they are suitable for your intended uses and applications. This application-specific analysis at least must include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. PUMA Polymers has not necessarily done such testing. All information is given without warranty or guarantee. It is expressly understood and agreed that customer assumes and hereby expressly releases PUMA Polymers from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance and information. Any statement or recommendation not contained herein is unauthorized and shall not bind PUMA Polymers. Nothing herein shall be construed as a recommendation to use any product in conflict with patents covering any material or its use. No license is implied or in fact granted under the claims of any patent.

V2-060809