Technical Data Sheet

SILASTIC™ RTV-4130-J Liquid Silicone Rubber Kit

High strength, flexible, silicone potting, encapsulating and moldmaking rubber

Features & Benefits

- Outstanding release properties
- High durometer hardness
- Very low shrinkage and good dimensional stability
- Good cut-growth resistance
- Can be used for high temperature casting applications
- Room temperature cure within 24 hours
- Heat-accelerable cure
- Long mold life
- Highly detailed reproductions
- Simplified handling

Composition

- Two-part silicone rubber supplied as a pourable fluid that cures to a firm, flexible elastomer

Applications

- SILASTIC™ RTV-4130-J Liquid Silicone Rubber Kit is suited for prototype design, production tooling, molds used to reproduce art objects, novelties and furniture components in urethane and other plastics

Typical Properties

Specification Writers: These values are not intended for use in preparing specifications.

CTM[1]	Property	Unit	Result
	Aviation & Aerospace Moldmaking Base And Curing Agent Mixture (100:10 By Weight)		
	Mixed Viscosity	mPa.s	85,000
	Color		Green
	Working Time At 23°C (73.4°F)	minutes	120–80
	Curing Time	hours	18–24
	Cured for 24 hours at 23°C (73.4°F)		
	Hardness (Shore A)		56
	Tensile strength	MPa	5.5
	Elongation at break	Percent	250

1. CTMs (Corporate Test Methods) correspond to standard ASTM tests in most instances. Copies of CTMs are available upon request.

Typical Properties (Cont.)

Test	Property	Unit	Result
	Cured for 24 hours at 23°C (73.4°F)		
	Tear Strength	kN/m	15
	Relative Density At 23°C (73.4°F)		1.29
	Linear Shrinkage	%	0.1
	Moldmaking Rubber Base And Curing Agent Mixture (10:1 By Weight)		
CTM 0176	Appearance,		
	Base		White
	Curing Agent		Dark green
	As Catalyzed		
CTM 0176	Appearance	Green	
CTM 0050	Viscosity[2] at 25°C (77°F)	poise	900
CTM 0092A	Snap Time[3] at 25°C (77°F)	hours	3
CTM 0092A	Cure Time[4] at 25°C (77°F)	hours	24
	As Cured 24 Hours At 25°C (77°F) – Physical Properties[5]		
CTM 0099	Durometer Hardness, Shore A	points	56
CTM 0137A	Tensile Strength	psi	900
CTM 0137A	Elongation, Die C	%	250
CTM 0159A	Tear Strength, Die B	ppi	90
CTM 0022	Specific Gravity At 25°C (77°F)		1.28
CTM 0157	Linear Shrink		Nil
CTM 0137A	Tensile Strength at 150% Elongation	psi	610

2. Brookfield Viscometer Model HAF, spindle #6 at 5 rpm.
3. Time required to become nonflowable.
4. Based on sample mass of one cubic inch.
5. Based on sample thickness of 125 mils.

Description

SILASTIC RTV-4130-J Kit is a two-component material consisting of SILASTIC™ RTV-4130-J Base, which when mixed with SILASTIC™ RTV-4130-J Curing Agent, cures at room temperature by an addition reaction. SILASTIC RTV-4130-J Base is white and its curing agent is green to aid inspection for uniform blending. A ratio of ten parts base to one part curing agent is provided for easy mixing. A range of materials can be cast into the cured silicone mold: plaster, polyurethane, polyester and other reactive resins are the materials typically used.

How To Use

Substrate/Pattern Preparation

Certain contaminants sometimes used in mold making operations can prevent SILASTIC RTV-4130-J Kit from curing. Patterns to be molded should be thoroughly cleaned to remove grease, oil and other surface contaminants. Care should also be taken to ensure that corners, crevices and draws are free from dirt or particles of foreign matter. A light “blow over” with compressed air is advised when the pattern has convoluted draws or undercuts. Then the original model or pattern should be placed in a light frame of cardboard, foil, wood or other material. There should be approximately ¼ inch clearances on all sides and over the top of the pattern. The pattern should be attached securely to the bottom of the frame so it does not float.

If necessary, and in particular with porous substrates, a pattern release agent should then be wiped or sprayed on the pattern. A light coat of release agent on the sides and underside of the top of the frame will facilitate release.

Addition Of Curing Agent

Thoroughly stir SILASTIC RTV-4130-J Curing Agent before use.

Weigh 100 parts of SILASTIC RTV-4130-J Base and 10 parts of SILASTIC RTV-4130-J Curing Agent in a clean container, then mix together until the curing agent is completely dispersed in the base. Hand or mechanical mixing can be used, but do not mix for an extended period of time or allow the temperature to exceed 35°C (95°F). Mix sufficiently small quantities to ensure thorough mixing of base and curing agent. For best curing results, use metal cans, clean glassware or unwaxed paper containers when mixing the base and curing agent.

It is strongly recommended that entrapped air be removed in a vacuum chamber, by applying a vacuum of 28 to 29 inches of mercury. Under such a vacuum, the material will expand to three to four times its original volume. As the froth collapses, the mixture will recede to its original volume. The vacuum should be held one or two minutes longer before releasing.

Note: If no vacuum de-airing equipment is available, air entrapment can be minimized by mixing a small quantity of base and curing agent, then using a brush, painting the original with a 1–2 mm layer. Leave at room temperature until the surface is bubble free and the layer has begun to cure. Mix a further quantity of base and curing agent and proceed as follows to produce a final mold.

Pressure casting may be substituted with equal success.

Working Time

SILASTIC RTV-4130-J Kit remains a flowable, pourable material for two hours after the curing agent is added.

How To Use (Cont.)

Pouring The Mixture And Curing

Pour the mixed base and curing agent as soon as possible onto the original, avoiding air entrapment. The catalyzed material will cure to a flexible rubber within 18–24 hours at room temperature (22–24°C / 71.6–75.2°F) and the mold can then be removed. If the working temperature is significantly lower, the cure time will be longer. Heat accelerating the cure is possible. However, this will increase the shrinkage from nil to 0.3 percent. The higher the curing temperature, the greater the likely differences in dimensions. As a guide, a 5 mm section of SILASTIC RTV-4130-J Kit will heat cure in 30 minutes at 65°C (149°F) or in 12 minutes at 100°C (212°F) once the material has reached this temperature. Vulcanization will not be accelerated at the center of the piece until the entire mass has reached the elevated temperature.

Inhibition Of Cure

SILASTIC RTV-4130-J Kit is formulated to have greater resistance to inhibition. However, localized inhibition of cure may be encountered at the interface when SILASTIC RTV-4130-J Kit comes in contact with certain contaminants during the curing process. Among materials found to cause inhibition are amines, sulphur containing and organometallic salt-containing compounds (such as organic rubbers), and condensation cure RTV silicones.

Surfaces previously in contact with any of the above materials may also cause inhibition. If in doubt, test for compatibility by brushing a small amount of catalyzed SILASTIC RTV-4130-J Kit over a localized area of the surface to be reproduced. Inhibition has occurred if the rubber is gummy or uncured after the curing period has elapsed. It is strongly recommended that mixing containers, mold construction materials, originals and release agents be checked for any inhibition effect before use.

Use At High Temperatures

Molds produced from SILASTIC RTV-4130-J Kit have a long life at elevated temperatures. However, continuous use above 200°C (392°F) will result in loss of elasticity over a period of time. Use above 250°C (482°F) is not recommended.

Resistance To Casting Materials

The chemical resistance of fully cured SILASTIC RTV-4130-J Kit is excellent, and similar to all addition-cure silicone elastomers. It should be noted however that ultimately, resins and other aggressive casting materials will attack silicone molds, changing physical properties, surface release and possibly mold dimensions. Molds should be checked periodically during long production runs.

Note: SILASTIC RTV-4130-J Kit is an industrial product and must not be used in food molding, dental and human skin molding applications.

Handling Precautions

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE ON THE DOW WEBSITE AT WWW.CONSUMER.DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

Usable Life And Storage

Product should be stored at or below 43°C (109.4°F) in original, unopened containers.

Limitations

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

Not intended for human injection. Not intended for food use.

Health And Environmental Information

To support customers in their product safety needs, Dow has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

For further information, please see our website, www.consumer.dow.com or consult your local Dow representative.

http://www.silastic.com