

## SILTRUST™ RTV6186 SILICONE GEL

### Description

SILTRUST RTV6186 silicone dielectric gel is a low viscosity liquid silicone which cures to form a very soft, gel-like elastomer. It is specifically designed to preserve dielectric integrity and provide outstanding protection to delicate electronic circuit assemblies operating in harsh environments. This clear, solventless, two component material is supplied with a curing agent in a matched kit which is designed for use at a convenient 1:1 ratio by weight.

When cured, silicone gels possess unique physical properties, combining the self-healing characteristics of a liquid with the non-flowing, dimensional stability of an elastomer. The soft nature and cushioning effect of these semi-solid materials provides excellent protection of electronic assemblies from external shock and vibration. These critical properties are not significantly affected by high and low temperature extremes. This ability, combined with their low modulus properties, makes silicone gels one of the most effective means of managing thermal stress related failures in hybrids and other circuitry utilizing surface mounted devices (SMDs) and other stress sensitive devices.

**RTV6186** is a "high strength", tough silicone gel which offers much better tear resistance properties than conventional gels. It also offers extended room temperature pot-life (8+ hours) for effective use on non-automated production lines.

### Key Features and Benefits

- Extremely soft, low modulus elastomeric properties
- Outstanding stress-relief properties
- Mechanical shock/vibration dampening properties
- Primerless adhesion to many substrates

- Excellent dielectric properties
- Excellent moisture protection properties
- Low toxicity, solventless formulation
- Probe testable/self-healing/repairable
- Low viscosity to ensure complete coverage
- Heat accelerated or room temperature cure
- Extended low/high temperature performance
- Low shrinkage, non-exothermic cure
- Optical clarity allows visual inspections

### Typical Physical Properties

<b>Uncured Properties (as catalyzed 1:1 by weight)</b>	<b>RTV6186</b>
Appearance	clear, colorless
Viscosity, cps (25°C/77°F)	750
Specific Gravity	0.98
Pot Life (25°C/77°F)	8+ hours
<b>Cured Properties (cured 30 minutes/150°C)</b>	
<b>Physical</b>	
Penetration, mm (25°C/77°F)	6.0
Useful Temperature Range, °C	-50 to 204
(°F)	(-58 to 400)
Refractive Index	1.41
<b>Electrical</b>	
Dielectric Strength, v/mil @75 mils	500
Dielectric Constant (1000 Hz)	2.8
Dissipation Factor (1000 Hz)	0.001
Volume Resistivity, Ohm-cm	1 X 10 <sup>15</sup>

### Patent Status

Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute the permission, inducement or recommendation to practice any

invention covered by any patent, without authority from the owner of the patent.

## **Product Safety, Handling and Storage**

### **CAUTION**

The curing agent (“B” component) of RTV6186 dielectric silicone gel can generate flammable hydrogen gas upon contact with acidic, basic, or oxidizing materials. Such contact should be avoided.

Customers should review the latest Safety Data Sheet (SDS) and label for product safety information, safe handling instructions, personal protective equipment if necessary, emergency service contact information, and any special storage conditions required for safety. Momentive Performance Materials (MPM) maintains an around-the-clock emergency service for its products. SDS are available at [www.momentive.com](http://www.momentive.com) or, upon request, from any MPM representative. For product storage and handling procedures to maintain the product quality within our stated specifications, please review Certificates of Analysis, which are available in the Order Center. Use of other materials in conjunction with MPM products (for example, primers) may require additional precautions. Please review and follow the safety information provided by the manufacturer of such other materials.

## **Processing Recommendations**

### **INSTRUCTIONS FOR USE**

#### **Compatibility**

RTV6186 silicone dielectric gel will cure in contact with most clean and dry surfaces. However, certain materials, such as butyl and chlorinated rubber, sulfur-containing materials, amines, and certain metal soap cured RTV silicone rubber compounds can cause cure inhibition. Cure inhibition is characterized by a lack of cure of the silicone gel at the interface between it and the substrate. Compatibility tests should be performed on all materials in contact with the uncured gel, including painted surfaces.

## Surface Preparation

The adhesive performance of any polymer system is highly dependent upon proper surface preparation. In order to maximize the adhesion of RTV6186 silicone dielectric gel and minimize the potential for cure inhibition, all parts should be as clean and dry as possible prior to the application of the silicone gel. In addition to minimizing the potential for cure inhibition, clean parts also minimize long term reliability problems which can be caused by contaminants trapped under the silicone gel.

## Bonding

RTV6186 silicone dielectric gel offers excellent, reformable, pressure sensitive adhesion characteristics to a wide variety of substrates without the need of a primer.

For difficult-to-bond-to substrates, or where more aggressive chemical adhesion is desired, the adhesion may be enhanced by using SS4155 silicone primer, available from Momentive Performance Materials. To apply the primer, thoroughly clean the surface and let dry. Then apply a uniform film (0.01-0.02 mm / 0.5-1.0 mil) of SS4155 silicone primer and allow the primer to air-dry for one hour or more. When dry, SS4155 silicone primer exhibits a white haze which will show through the silicone gel. If the appearance of the surface to be bonded must be unchanged, SS4120 silicone primer, also available from Momentive Performance Materials, may be used.

## Mixing

RTV6186 silicone dielectric gel is a kit-matched product. As such, work time (pot-life), cure time, and final cured properties can only be assured if the batch numbers on the A component and B component are identical and the material is mixed at a ratio of 1:1 (by weight).

To hand mix, select a clean mixing container 4-5 times larger than the volume of RTV silicone gel to be used. Weigh out equal amounts of the A & B components. With clean tools, thoroughly mix the A & B components together, scraping the sides and bottom of the container carefully to produce a homogeneous mixture. Care should be taken to

minimize the amount of air entrapment. Vacuum deaeration (25 mm mercury) can be used to remove entrapped air from the uncured mixture.

The final cured properties of RTV6186 series silicone dielectric gel can be altered by changing the mix ratio of the two components. Increasing the ratio of Part A to Part B will yield a softer gel (i.e. higher penetration value). Likewise, decreasing the ratio of Part A to Part B will result in a gel with a lower penetration value. Deviations greater than 10% from the standard 1:1 mix ratio are not recommended. Changes to the mix ratio will affect the pot-life of the catalyzed mixture.

### Pot-Life and Cure Time

Product	Pot-life	Cure Time (1:1) Mix Ratio			
		25°C (77°F)	25°C (77°F)	65°C (149°F)	100°C (212°F)
RTV6186	8+ hrs	N/A*	4 hrs	1 hr	15 mins

\*Requires minimum cure temperature of 60°C

**When used, ovens must be well ventilated.**

CURE TIMES ARE ONLY APPROXIMATE. THE ACTUAL TIME IS AFFECTED BY THE MASS OF THE GEL AND THE TIME REQUIRED TO REACH THE DESIRED TEMPERATURE.

### Equipment

Automatic equipment designed to meter, mix, and dispense two-component RTV silicone gels will add convenience and reliability to continuous or large volume

operations.

**Limitations**

Customers must evaluate Momentive Performance Materials products and make their own determination as to fitness of use in their particular applications.

**Contact Information**

Email

[commercial.services@momentive.com](mailto:commercial.services@momentive.com)

**Telephone**

<b>Americas</b>	<b>Latin America</b>	<b>EMEAI- Europe, Middle East, Africa &amp; India</b>	<b>ASIA PACIFIC</b>
+1 800 295 2392	<b>Brazil</b>	<b>Europe</b>	<b>China</b>
Toll free*	+55 11 4534 9650	+390510924300	800 820 0202
+704 805 6946	Direct Number	Direct number	Toll free
Direct Number			+86 21 3860 4892
			Direct number
*All American countries	<b>Mexico</b>	<b>India, Middle East &amp; Africa</b>	<b>Japan</b>
	+52 55 2169 7670	+ 91 44 71212207	+81 3 5544 3111
	Direct Number	Direct number*	Direct number
		<b>*All Middle Eastern countries, Africa, India,</b>	<b>Korea</b>
			+82 2 6201 4600

For literature and technical assistance, visit our website at: [www.momentive.com](http://www.momentive.com)

**DISCLAIMER:**

**THE MATERIALS, PRODUCTS AND SERVICES OF MOMENTIVE PERFORMANCE MATERIALS INC. AND ITS SUBSIDIARIES AND AFFILIATES (COLLECTIVELY “SUPPLIER”), ARE SOLD SUBJECT TO SUPPLIER’S STANDARD CONDITIONS OF SALE, WHICH ARE INCLUDED IN THE APPLICABLE DISTRIBUTOR OR OTHER SALES AGREEMENT, PRINTED ON THE BACK OF ORDER**

**ACKNOWLEDGMENTS AND INVOICES, AND AVAILABLE UPON REQUEST. ALTHOUGH ANY INFORMATION, RECOMMENDATIONS, OR ADVICE CONTAINED HEREIN IS GIVEN IN GOOD FAITH, SUPPLIER MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, (i) THAT THE RESULTS DESCRIBED HEREIN WILL BE OBTAINED UNDER END-USE CONDITIONS, OR (ii) AS TO THE EFFECTIVENESS OR SAFETY OF ANY DESIGN INCORPORATING ITS PRODUCTS, MATERIALS, SERVICES, RECOMMENDATIONS OR ADVICE. EXCEPT AS PROVIDED IN SUPPLIER'S STANDARD CONDITIONS OF SALE, SUPPLIER AND ITS REPRESENTATIVES SHALL IN NO EVENT BE RESPONSIBLE FOR ANY LOSS RESULTING FROM ANY USE OF ITS MATERIALS, PRODUCTS OR SERVICES DESCRIBED HEREIN.** Each user bears full responsibility for making its own determination as to the suitability of Supplier's materials, services, recommendations, or advice for its own particular use. Each user must identify and perform all tests and analyses necessary to assure that its finished parts incorporating Supplier's products, materials, or services will be safe and suitable for use under end-use conditions. Nothing in this or any other document, nor any oral recommendation or advice, shall be deemed to alter, vary, supersede, or waive any provision of Supplier's standard Conditions of Sale or this Disclaimer, unless any such modification is specifically agreed to in a writing signed by Supplier. No statement contained herein concerning a possible or suggested use of any material, product, service or design is intended, or should be construed, to grant any license under any patent or other intellectual property right of Supplier covering such use or design, or as a recommendation for the use of such material, product, service or design in the infringement of any patent or other intellectual property right.

The use of the "™" symbol designates registered or unregistered trademarks of Momentive Performance Materials Inc. or its affiliated companies. Momentive and the Momentive logo are trademarks of Momentive Performance Materials Inc.