



## RTV615

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### *RTV615 High Strength Transparent Silicone Rubber Compound*

#### **Product Description**

RTV615 silicone rubber compound is clear liquid which cure at room temperature to high strength silicone rubber with the addition of curing agents. This two-component product is supplied with curing agent in matched kits which are designed for use at a convenient 10:1 ratio by weight.

The compound is clear and colourless. It is a low viscosity, easily pourable liquid with nominal viscosity ranging between 3000 and 7000 cps.

RTV615 silicone rubber compound has been used for protection of electronic components and assemblies against shock, vibration, moisture, ozone, dust, chemicals, and other environmental hazards by potting or encapsulation of the components and assemblies.

The optical clarity of this silicone rubber compounds suggests evaluation for applications such as potting solar cells for maximum light transmission and electronic assemblies where component identification is necessary or desirable.

#### **Key Performance Properties**

- Convenient 10:1 mixing ratio for use in automatic dispensing or hand operations
- Low viscosity allows easy flow in and around complex parts, providing excellent electrical insulation and shock resistance
- Cure rate can be accelerated by heat
- Will cure in deep sections or enclosed assemblies without exotherm and with low shrinkage
- Chemical composition contains no solvents for ease of use on production lines
- Reversion resistance and hydrolytic stability permit use in high humidity environments at elevated temperatures
- Clarity permits visual inspection for easy identification and repair of encapsulated parts
- Retention of elastomeric properties at temperatures up to 204 °C

**Typical Product Data**

<b>UNCURED PROPERTIES</b>	<b>RTV615A</b>	<b>RTV615B</b>
Colour	Clear Colourless	Clear Colourless
Consistency	Easily Pourable	Easily Pourable
Viscosity, cps	4300	—
Specific Gravity	1.02	—
<b>UNCURED PROPERTIES WITH CURING AGENT ADDED</b>	<b>RTV615</b>	
Colour	Clear, Colourless	
Consistency	Easily Pourable	
Viscosity, cps	4000	
Work Time @ 25 °C, hrs	4	
<b>CURED PROPERTIES (Cured 1 hr. @ 100C/212F)</b>	<b>RTV615</b>	
<b>Mechanical</b>		
Hardness, Shore A Durometer	44	
Tensile Strength, kg/cm <sup>2</sup>	65	
Elongation, %	120	
Shrinkage, %	0.2	
Refractive Index	1.406	

**Typical Product Data**

<b>Electrical</b>	
Dielectric Strength, kV/mm (v/mil) (1.9 mm thick)	19.7 (500)
Dielectric Constant @ 1000 Hz	2.7
Dissipation Factor @ 1000 Hz	0.0006
Volume Resistivity, ohm-cm	$1.8 \times 10^{15}$
<b>Thermal</b>	
Useful Temperature Range, °C	-60 to 204
Thermal Conductivity, gm-cal/sec, cm <sup>2</sup> , °C/cm	0.00045
Coefficient of Expansion, cm/cm, °C	$27 \times 10^{-5}$
Specific Heat, cal/gm, °C	0.3

## **Specifications** FDA STATUS

RTV615 silicone rubber compound and SS4120 silicone primer may be used in food contact applications where [FDA](#) regulations apply.

## **Instructions for Use** Compatibility

RTV615 silicone rubber compound will cure in contact with most clean, dry surfaces. However, certain materials, such as butyl and chlorinated rubber, sulphur-containing materials, amines, and certain metal soap-cured RTV silicone rubber compounds, can cause cure inhibition. Cure inhibition is characterized by a gummy appearance of the RTV silicone rubber compound at the interface between it and the substrate.

It is recommended that a sample patch test be performed with RTV615 silicone rubber compound to determine if a barrier coating or other inhibition-preventing measures are necessary before pouring the material.

### **Mixing**

Select a mixing container 4-5 times larger than the volume of RTV silicone rubber compound to be used. Weigh out ten parts of the A component and one part of the B component. Since RTV615 silicone rubber compound is kit-matched, work time (or pot life), cure time, and final properties of the cured RTV silicone rubber compound can be assured only if the A component is used with the B component from the same kit.

With clean tools, thoroughly mix the A and B components together, scraping the sides and bottom of the container carefully to produce a homogeneous mixture. When using power mixers, avoid excessive speeds which could entrap large amounts of air or cause overheating of the mixture, resulting in shorter pot life.

### **De-aeration**

Air entrapped during mixing should be removed to eliminate voids in the cured product. Expose the mixed material to a vacuum of about 25 mm of mercury. The material will expand, crest, and recede to approximately the original level as the bubbles break. Degassing is usually complete approximately two minutes after frothing ceases. When using the RTV silicone rubber compound for potting, a de-aeration step may be necessary after pouring to avoid capturing air in complex assemblies.

Automatic equipment designed to meter, mix, de-aerate, and dispense two-component RTV silicone rubber compounds will add convenience to continuous or large volume operations. For additional information refer to GE Silicones equipment guide (1758).

### **Curing**

RTV615 silicone rubber compound will cure sufficiently in 24 hours at 25C to permit handling. To achieve optimum properties an elevated temperature cure or a cure time of 7 days at room temperature is required. The table below illustrates the effect of temperature on cure time:

Temperature, °C)	Cure Time*
25	6-7 days
65	4 hrs.
100	1 hr.
125	45 min.
150	15 min.

\* Cure times are only approximate. The actual time is affected by the mass of the unit and the time required to reach the desired temperature.

### **Bonding**

These silicone rubber compounds require a primer to bond to non-silicone surfaces.

Thoroughly clean the substrate with a non-oily solvent such as naphtha or methyl ethyl ketone and allow to dry. Then apply a uniform thin film of SS4155 silicone primer and allow the primer to air dry for one hour or more. Finally, apply freshly catalysed RTV silicone rubber compound to the primed surface and cure as recommended. When dry, SS4155 silicone primer exhibits a white haze which will show through RTV615 silicone rubber compound. If the appearance of the surface to be bonded must be unchanged, SS4120 silicone primer (which dries to an invisible film) may be used. For more details on priming and adhesion, refer to GE Silicones data sheet on silicone primers (1873).

### **Handling and Safety**

Material Safety Data Sheets are available upon request from GE Silicones. Similar information for solvents and other chemicals used with GE products should be obtained from your suppliers. When solvents are used, proper safety precautions must be observed.

### **Caution**

RTV615B curing agent can generate flammable hydrogen gas upon contact with acidic, basic, or oxidizing materials. Such contact should be avoided.

### **Storage and Warranty Period**

The warranty period is 12 months from date of shipment from GE Silicones if stored in the original unopened container at a temperature of 27°C or below.

### **Availability**

RTV615, silicone rubber compound may be ordered from GE Silicones, Waterford, NY, 12188, the GE Silicones sales office nearest you or an authorized GE silicone product distributor.

### **Government Requirement**

Prior to considering use of a GE Silicones product in fulfilling any Government requirement, please contact the Government and Trade Compliance office at 413-448-4624.

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