



GE Bayer Silicones



RTV627



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Flame Retardant Silicone Rubber Compound

Product Description

RTV627 silicone rubber compound is a two-component room temperature vulcanizing GE Bayer Silicones rubber compound for potting and encapsulation, particularly where flammability is of concern. This product is supplied with curing agent in matched kits which are designed for use at a convenient 1:1 ratio by weight or volume.

RTV627 silicone rubber compound is recommended for evaluation in applications such as a production line potting compound to provide protection of electronic components and assemblies against thermal shock, vibration, moisture, ozone, dust, chemicals, and other environmental hazards. Other applications include encapsulation of high voltage transformers, voltage regulators, power converters and complete power supplies.

Key Performance Properties

- Convenient 1:1 mix ratio by weight or volume for use in automatic dispensing or hand operations
- Low viscosity allows easy flow in and around complex parts
- Cure rate can be accelerated by heat
- Will cure in deep sections or enclosed assemblies without exotherm and with low shrinkage
- Reversion resistant and hydrolytically stable
- Recognized by Underwriters Laboratories with a flammability classification of UL94V-0 in a sample thickness of 3.2 mm
- Retention of elastomeric properties at temperatures up to 204°C

Typical Product Data

UNCURED PROPERTIES	RTV 627A	RTV 627B
Colour	Black	Beige
Consistency	Easily Pourable	Easily Pourable
Viscosity, mPa.s	1380	1120
Density, g/cm ³	1.37	1.38
UNCURED PROPERTIES (WITH CURING AGENT ADDED)		RTV 627
Colour		Dark Gray
Consistency		Easily Pourable
Viscosity, cps		1270
Work Time @ 25°C, hrs		2
CURED PROPERTIES (Cured 1 hr. @ 100C)		RTV 627
Mechanical		
Hardness, Shore A Durometer		62
Tensile Strength, (MPa)		3.3
Elongation, %		60
Tear Strength, kN/m		3.4
Shrinkage, %		1.3
Flammability		
Limiting Oxygen Index, %		37.8
UL94 Classification		
3.18 mm		V-0
1.34 mm		V-1

Electrical	
Dielectric Strength, kV/mm (1.9 mm thick)	20.1
Dielectric Constant @ 1000 Hz	2.97
Dissipation Factor @ 1000 Hz	0.006
Volume Resistivity, ohm-cm	5.7×10^{14}
Thermal	
Useful Temperature Range, °C	-60 to 204
Thermal Conductivity, W/m.K	0.31
Coefficient of Expansion, cm/cm, °C	21.6×10^{-5}
Specific Heat, cal/gm, °C	0.35

FLAMMABILITY

Underwriters Laboratories Inc. Standard 94 describes a vertical burning test to be performed under laboratory conditions. In this test thin rectangular specimens are placed in the flame from a laboratory burner, and the ability or inability of the substance to sustain a flame over a specified period of time upon removal of the source of the flame is determined. When tested by this procedure, RTV627 silicone rubber compound has exhibited burning characteristics for a classification of UL94 V-0 in a minimum thickness of 3.18 mm and of UL94 V-1 in a minimum thickness of 1.34 mm. Potential users of this product should refer to UL 94 for details of the test and classification limits.

Each potential user should determine for himself/herself whether these test procedures are meaningful for his/her particular application and should run independent tests to determine whether RTV627 silicone rubber compound is suitable for such application.

The above test, claims, representations and descriptions regarding the flammability of the product described are based on standard small scale laboratory tests and, as such, are not reliable for determining, evaluating, predicting or describing the flammability or burning characteristics of these products under actual fire conditions, whether these products are used alone or in combination with other products.

Specifications

Typical product data values should not be used as specification. Assistance and specification are available by contacting GE Bayer Silicones Technical Service RTV1 and RTV2

Instructions for Use

Mixing

Since settling of filler occurs during storage, RTV627A base compound and RTV627B curing agent each should be thoroughly stirred before mixing together.

Select a mixing container 4-5 times larger than the volume of RTV silicone rubber compound to be used. Weigh out one part of the A component and one part of the B component. Since RTV 627 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.

Deaeration

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 about the original level as the bubbles break. Degassing is usually complete about two minutes after frothing ceases. When using the RTV silicone rubber compound for potting, a deaeration step may be necessary after pouring to avoid capturing air in complex assemblies.

Automatic equipment designed to meter, mix, deaerate, and dispense two-component RTV silicone rubber compounds will add convenience to continuous or large volume operations.

Curing

RTV627 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 two days at room temperature is required. The table below illustrates the effect of temperature on cure time:

<u>Temperature, °C</u>	<u>Cure Time*</u>
25	2 days
65	4 hrs.
100	1 hr.
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

RTV627 silicone rubber compound requires a primer to bond to non-silicone surfaces. Thoroughly clean the substrate with a non-oily solvent such as naphtha or methyl ethyl ketone (MEK), and let 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 catalyzed RTV627 silicone rubber compound to the primed surface and cure as recommended.

Handling and Safety

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

Caution

RTV627B 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 warranted shelf life will be indicated by the 'use before date' on the associated documents with a minimum of 4 months when stored in the original unopened containers below 25° C.

Availability

RTV627 is available in 907.2 g, 10 kg, 45.4 kg and 453.6 kg kits

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