GE Silicones

RTV627

Flame Retardant Silicone Rubber Compound

Product Description

RTV627 silicone rubber compound is a two-component room temperature vulcanizing GE 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 dark grey in colour and has an easily pourable viscosity of about 1300 cps.

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
- Chemical composition contains no solvents for ease of use on production lines
- 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-O in a sample thickness of 3.2 mm (0.125 in.)
- 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, cps	1380	1120
Specific Gravity	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)	
Mechanical	
Hardness, Shore A Durometer	62
Tensile Strength, kg/cm^2 (psi)	33(475)
Elongation, %	60
Tear Strength, kg/cm (lb/in)	3.4(19)
Shrinkage, %	1.3
Flammability	
Limiting Oxygen Index, %	37.8
UL94 Classification	
3.18 mm (0.125 in.)	V-0
1.34 mm (0.053 in.)	V-1
Electrical	
Dielectric Strength, KV /mm (v/mil) (1.9 mm thick)	20.1(510
Dielectric Constant @ 1000 Hz	2.97
Dissipation Factor @ 1000 Hz	0.006
Volume Resistivity, ohm-cm	5.7 x 10^{14}
Thermal	
Useful Temperature Range °C	-60 to 204
Thermal Conductivity W/M K	0.31
(Btu/hr, ft^2, °F/ft)	(0.18)
Coefficient of Expansion, cm/cm, °C	21.6 x 10^{-5}
(in/in, °F)	(12 x 10^{-5})
Specific Heat, cal/gm, °C	0.35
(Btu/lb, ° F)	(0.35)

CERTIFICATION: Suitable for use in the electrical apparatus for explosive gas atmospheres and meet with the following Australian Standards:

AS/ NZS 60079.0:2005	**General Requirements**
AS/NZS 60079.18:2005	**Encapsulation "m"**

Ask our technical staff for the copy of the certification

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 (0.125 in.) and of UL94 V-1 in a minimum thickness of 1.34 mm (0.053 in.). Potential users of this product should refer to UL 94 for details of the test and classification limits.

Each potential user should determine 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.

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.

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 (29 in.) 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 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

RTV627 silicone rubber compound will cure sufficiently in 24 hours at 25**°C** 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.

Temperature, °C	**Cure Time***
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 catalysed RTV627 silicone rubber compound to the primed surface and cure as recommended. 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

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 warranty period is 12 months from date of shipment from GE Silicones if stored in the original unopened container at 27°C (80°F) or below

Availability

RTV627 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. CDS 4892

LEGAL DISCLAIMER

THE MATERIALS, PRODUCTS AND SERVICES OF GE SILICONES, GE BAYER SILICONES, GE TOSHIBA SILICONES, THEIR SUBSIDIARIES OR AFFILIATES (THE "SUPPLIER"), ARE SOLD SUBJECT TO THE SUPPLIER'S STANDARD CONDITIONS OF SALE, WHICH ARE INCLUDED IN APPLICABLE SALES AGREEMENTS, PRINTED ON THE BACK OF ACKNOWLEDGMENTS AND INVOICES, OR AVAILABLE UPON REQUEST. ALTHOUGH THE 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 SUPPLIER'S MATERIALS, PRODUCTS, SERVICES, RECOMMENDATIONS OR ADVICE. NOTHING IN THIS OR ANY OTHER DOCUMENT SHALL ALTER, VARY, SUPERSEDE OR OPERATE AS A WAIVER OF ANY OF THE SUPPLIER'S STANDARD CONDITIONS OF SALE.

Each user bears the full responsibility for making its own determination as to the suitability of Supplier's materials, products, services, recommendations or advice for its own particular purpose. Each user must identify and perform tests and analyses sufficient to assure it that its finished parts will be safe and suitable for use under end-use conditions. Because actual use of products by the user is beyond the control of Supplier, such use is within the exclusive responsibility of the user, and Supplier cannot be held responsible for any loss incurred through incorrect or faulty use of the products. Further, 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 or any of its subsidiaries or affiliated companies, 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