

SILTRUST™ RTV627 SILICONE RUBBER COMPOUND

Description

SILTRUST RTV627 silicone rubber compound is a two-component room temperature vulcanizing Momentive Performance Materials 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. SILTRUST RTV627 silicone rubber compound is dark gray in color and has an easily pourable viscosity of about 1300 cps.

SILTRUST 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 Features and Benefits

- 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-0 in a sample thickness of 3.2 mm (0.125 in.)

- Retention of elastomeric properties at temperatures up to 204°C (400°F)

Typical Physical Properties

UNCURED PROPERTIES	RTV 627A	RTV 627B
Color	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
Color	Dark Gray
Consistency	Easily Pourable
Viscosity, cps	1270
Work Time @ 25°C (77°F), hrs	2
CURED PROPERTIES (Cured 1 hr. @ 100°C/212°F)	RTV 627
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 (°F)	-60 to 204 (-75 to 400)
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)

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 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.

Processing Recommendations

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 (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 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 25°C (77°F) 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 (°F)</u>	<u>Cure Time*</u>
25 (77)	2 days
65 (149)	4 hrs.
100 (212)	1 hr.
150 (302)	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.

General Considerations for Use

While the typical operating temperature for silicone materials ranges from -45°C to 200°C, the long-term maintenance of its initial properties is dependent upon design related stress considerations, substrate materials, frequency of thermal cycles, and other factors.

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

RTV627B curing agent 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 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.

Limitations

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

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