GE Silicones

RTV100 Series

One-Component Acetoxy Adhesive Sealants

Product Description

RTV102, RTV103, RTV108 and RTV109 one-component, ready-to-use adhesive sealants are extremely versatile. They cure to a tough, durable, resilient silicone rubber on exposure to atmospheric moisture at room temperature. Acetic acid vapors are released from the sealant surface as a by-product of cure.

RTV102, RTV103, RTV108 and RTV109 sealants are standard strength paste consistency products which can be applied to vertical and overhead surfaces where pourable/self-leveling sealants are not practical.

Since all these sealants utilize a moisture cure system, they must not be used in thicknesses of greater than 6mm (1/4 in.).

Where section depths exceed 6mm (1/4 in.), GE Silicones one component, addition cure or two-component silicone rubber compounds are recommended.

Key Performance Properties

- One-component products
- Capability to cure at room temperature and ambient humidity
- Self adhesion properties
- Low temperature flexibility
- High temperature performance
- Excellent weatherability and ozone and chemical resistance
- Excellent electrical insulation properties

Typical Product Data

Uncured Properties	**RTV102, RTV103 RTV108, RTV109**
Consistency	Paste
Color	RTV102 White RTV103 Black RTV108 Translucent RTV109 Aluminum
Viscosity, poises	–
Application Rate, (g/min)	400
Specific Gravity	1.05
Tack-Free Time, min.	20
Cured Properties[(1)]	**RTV102, RTV103 RTV108, RTV109**
Mechanical:	
Tensile Strength, kg/cm^2 (lb/in^2)	28 (400)
Elongation, %	450
Hardness, Shore A	30
Tear Strength, kg/cm (lb/in)	8 (45)
Shear Strength, kg/cm^2 (lb/in^2)[(2)]	14 (200)
Peel Strength, kg/cm (lb/in)[(3)]	7 (40)

Typical Product Data

Electrical:	**RTV102, RTV103 RTV108, RTV109**
Dielectric Strength, kv/mm (v/mil)	20 (500)
Dielectric Constant @ 60 Hz	2.8
Dissipation Factor @ 60 Hz	.001
Volume Resistivity, ohm-cm	3x1015
Thermal:(4)	
Brittle Point, °C (°F)	-60 (-75)
Maximum continuous operating temperature, °C (°F)	204 (400)
Maximum intermittent operating temperature °C (°F)	260 (500)
Additional Information:(4)	
Linear Shrinkage, %	1.0
Thermal Conductivity, cal/sec/cm^2, °C/cm	.0005
(Btu/hr/ft^2, °F/ft)	(.12)
Coefficient of Expansion cm/cm, °C	27x10-5
(in/in, °F)	(15x10-5)

(1) Cure time 3 days/25C (77F)/50% relative humidity.
(2) At 100% cohesive failure.
(3) At 100% cohesive failure using 1 in. x 8 in. stainless steel screen at 180° pull angle.
(4) Information is provided for customer convenience only. These properties are not tested on a routine basis.

Specifications

Typical product data values should not be used as specifications. Assistance and specifications are available by contacting GE Silicones at 800/255-8886.

FDA STATUS

RTV102, RTV103, RTV106, RTV108 and RTV109 sealants can be used in food contact applications where FDA regulations apply. Reference CDS4319 “Food Contact Applications, Silicone Rubber Compounds”, for specific regulations, limitations and conditions of use.

USDA STATUS

RTV102, RTV103, RTV106, RTV108 and RTV109 sealants may be used on equipment which may contact edible products in official establishments operating under the Federal meat and poultry products inspection program. See USDA letter of Authorization. Refer to GE Silicones bulletin CDS #4319 before use.

NSF INTERNATIONAL STATUS

NSF International lists RTV102, RTV103, RTV106, RTV108 and RTV109, sealants under NSF International Standard No. 51 (Plastic Materials and Components for Use in Food Equipment), as satisfactory for use on food contact surfaces. Refer to GE bulletin CDS #4319 before use.

UL STATUS

RTV102, RTV103, RTV106, RTV108 and RTV109 silicone rubber adhesive sealants are recognized by Underwriters Laboratories, Inc., under their Component Recognition Program (UL File No. E-36952). Refer to CDS4320 for additional information.

MILITARY SPECIFICATION

MIL-A-46106

Group I	Type I	General Purpose Paste RTV102, RTV103, RTV108, RTV109

Testing for referenced MIL Spec is performed in accordance with current GE Silicones quality test methods, laboratory conditions, and procedures, frequency and sampling, which are not necessarily identical with the methods, conditions, procedures, frequency and sampling stated or referenced in the listed specification. Any certification will be limited to listed properties and will not imply or state conformity to any other aspect of the referenced specification, including but not limited to marking, packaging, bar coding, testing, or sampling. Contact GE Silicones for a comparison review.

Instructions for Use

Surface Preparation

RTV102, RTV103, RTV108 and RTV109 sealants will bond to many clean surfaces without the aid of primers. These surfaces typically include many metals, glass, ceramic, silicone rubber and some rigid plastics. These adhesive sealant products will also produce fair bonds to organic rubber and to some flexible plastics not containing fugitive plasticizers (which migrate to the surface, impairing adhesion). An evaluation should be made to determine bond strength for each specific application. For difficult-to-bond substrates, use of a primer is suggested. Primers SS4004, SS4044 and SS4179 are recommended for use with these sealants. Complete information and usage instructions for these primer products are contained in a separate product data sheet, (CDS #1532).

Where adhesion is required, surfaces should be thoroughly cleaned with a suitable solvent such as naphtha or methyl ethyl ketone (MEK) to remove dirt, oil and grease. The surface should be wiped dry before applying the adhesive sealant.

When solvents are used, proper safety precautions must be observed.

Application and Cure Time Cycle

Paste-consistency products may be applied directly to clean or primed substrates. Where broad surfaces are to be mated, the sealant should be applied in a thin, less than 6mm (1/4 in.) diameter, bead or ribbon around the edge of the surface to be bonded.

The cure process begins with the formation of a skin on the exposed surface of the sealant and progresses inward through the material. At 25C (77F) and 50% relative humidity, RTV102, RTV103, RTV108 and RTV109 sealants will form a surface skin which is tack-free to the touch in 15 to 30 minutes. Once the tack-free skin has begun to form, further tooling of the adhesive sealant is not advisable.

Higher temperatures and humidity will accelerate the cure process low temperatures and low humidity will slow the cure rate.

As the adhesive sealant cures, acetic acid vapors are released from the sealant surface. The odor of acetic acid will completely disappear when curing is completed.

A 3mm (1/8 in.) section of adhesive sealant will cure through in approximately 24 hours at 25C (77F) and 50% R.H. Since cure time increases with thickness, use of these adhesive sealants should be limited to section thicknesses of 6mm (1/4 in.) or less.

Bond Strength Development

In addition to the effects of temperature and relative humidity, development of maximum bond strength will depend on joint configuration, degree of confinement, sealant thickness and substrate porosity. Normally, sufficient bond strength will develop in 12 to 24 hours to permit handling of parts. Minimum stress should be applied to the bonded joint until full adhesive strength is developed. Eventually the adhesive strength of the bond will exceed the cohesive strength of the silicone rubber sealant itself. Always allow maximum cure time available for best results.

PACKAGING AND DISPENSING

RTV adhesive sealants from GE Silicones are supplied ready-to-use in collapsible aluminum squeeze tubes, caulking cartridges and in bulk containers.

Collapsible aluminum tubes may be squeezed by hand or with the aid of mechanical wringers which allow more complete removal of material from the tube. Air-operated dispensing guns may also be used with aluminum tubes and offer the advantages of improved control and faster application for production line use. The sealant may be dispensed from caulking cartridges by using simple mechanical caulking guns or air-operated guns. Air-operated guns will allow greater control and application speed. Both tubes and cartridges are easy to use, can be put into production quickly and require minimal capital investment.

Note: Do not exceed 45 psig when used in air-powered caulking guns.

Bulk containers require a larger initial investment in dispensing equipment, but offer the most economical packaging for volume production. Bulk dispensing systems are air-operated extrusion pumps coupled to hand or automated dispensing units. Pumps which are specifically designed for pumping one-component RTV silicone rubber have TEFLON® seals, packing and lined hoses to prevent moisture permeation and pump cure problems. Specific details on dispensing systems and manufacturers are available in a separate GE Silicones RTV Silicone Rubber Equipment Guide (CDS #1541).

CLEAN UP AND REMOVAL

Before curing, solvent systems such as naphtha or methyl ethyl ketone (MEK) are most effective. Refer to solvent use warnings in the section on surface preparation.

After cure, selected chemical strippers which will remove the silicone rubber are available from other manufacturers. Specific product information may be obtained on request.

Handling and Safety

These products are manufactured and sold for industrial use only. Material Safety Data Sheets are available upon request from GE Silicones. Similar information for solvents and other chemicals used with our products should be obtained from your suppliers.

Storage and Warranty Period

The warranty period for RTV102, RTV103, RTV106, RTV108 and RTV109 is 12 months from date of shipment from GE Silicones if stored in the original unopened containers in a dry location at temperatures less than 27C (80F).

Availability

GE Silicones rubber sealants 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.

CDS4312

LEGAL DISCLAIMER

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