



RTV157

RTV 157 High Strength Silicone Adhesive Sealant

Product Description

RTV157 is one-component, ready-to-use, high strength silicone rubber adhesive sealants. It cures to tough resilient silicone rubber on exposure to atmospheric moisture at room temperature. It releases acetic acid vapours as a by-product of cure.

RTV157 sealant is paste consistency product which can be applied to horizontal, vertical and overhead surfaces in applications requiring high strength and temperature performance.

Since this adhesive sealant utilizes a moisture cure system, it 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 suggested.

It is not designed for and should not be used for applications intended for permanent implantation into the human body.

Key Performance Properties

- High strength
- High temperature performance
- Low temperature flexibility
- One-component
- Room temperature cure
- General primer less adhesion
- Excellent electrical insulation properties
- Excellent weatherability, ozone, and chemical resistance

Typical Product Data

UNCURED PROPERTIES:		RTV157
Consistency		Paste
Colour		Gray
Application Rate, gm/minute		155
Specific Gravity		1.09
Tack-Free Time, minutes		45
CURED PROPERTIES: (1)		RTV157
Mechanical:		
Hardness, Shore A		28
Percent Elongation		825
Tensile Strength, kg/cm ² (lbs./in. ²)		68.6 (975)
Tear Strength, kg/cm, (lbs./in.)		16.1 (90)
Peel Strength, kg/cm, (lbs./in.) (2)		10.7 (60)
Electrical:		
Dielectric Strength, kv/mm (v/mil)		20.7 (525)
Dielectric Constant		2.9
Dissipation Factor		0.0009
Volume Resistivity, ohm-cm		7.5 x 10 ¹⁴
Thermal: (3)		
Brittle Point, °C (°F)		-60 (-75)
Maximum Continuous Operating Temperature, °C (°F)		204 (400)
Maximum Intermittent Operating Temperature, °C (°F)		260 (500)
Additional Information:(3)		
Linear Shrinkage		1.0
Thermal Conductivity, cal/sec/cm ² , °C/cm (btu/hr/ft ² , °F/ft)		.0005 (.12)
Coefficient of Expansion cm/cm, °C (in/in, °F)		27 x 10 ⁻⁵ (15 x 10 ⁻⁵)

(1) Cured 3 days at 25°C and 50% relative humidity.

(2) Cured 7 days at 25°C and 50% relative humidity. Substrate was alclad aluminium.

(3) 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 recommendations are available by contacting GE Silicones at 800/255-8886.

PATENTS

RTV157 sealant is within the scope of Patents 3,438,930, 3,541,044 and 3,635,743.

Instructions for Use **Surface Preparation**

RTV157 sealant 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. The adhesive sealant 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 the sealant. (Complete information and usage instructions for these primer products are contained in a separate product data sheet).

Where adhesion is required, surfaces should be thoroughly cleaned with a suitable solvent 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. All solvents must be considered toxic and must be used only in well ventilated areas.

Exposure to high vapour concentration must be avoided, when flammable solvents are used, storage, mixing and use must be in areas away from heat, sparks or other sources of ignition.

Application and Cure Time Cycle

RTV157 sealant 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 25°C and 50% relative humidity, RTV157 sealant will form a tack-free surface skin in about 30 to 60 minutes. Once the tack-free skin has begun to form, further tooling of the adhesive sealant is not advisable.

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

Because these adhesive sealants cure by reacting with atmospheric moisture, higher temperatures and humidity will accelerate the cure process lower temperatures and humidity will slow the cure rate.

Exact cure time will depend on temperature, humidity, sample thickness and sealant configuration. Since cure times increase 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, generally considered to be 7 days at 73F / 50% RH. Eventually, the adhesive strength of the bond will exceed the cohesive strength of the silicone rubber adhesive sealant itself. Always allow maximum cure time available for best results.

PACKAGING AND DISPENSING

RTV157 adhesive sealant is supplied ready-to-use in collapsible aluminium squeeze tubes, caulking cartridges and in bulk containers.

Collapsible aluminium 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 aluminium 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 using 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, (1541).

CLEANUP 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.

® TEFLON is a registered trademark of Dupont.

Handling and Safety	The product is 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 GE products should be obtained from your suppliers.
Storage and Warranty Period	The warranty period for RTV157 is 6 months from date of shipment from GE Silicones if stored in the original unopened containers in a dry location at temperatures less than 27C .
Availability	RTV157 sealant 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 Silicone product in fulfilling any government requirement, please contact the Government and Trade Compliance office at 413-448-4624.

CDS4727

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.