Technical Data Sheet

SNAPSIL™ RTV162 SILICONE ADHESIVE SEALANT

Description

RTV160, RTV162 and RTV167 adhesive sealants from Momentive Performance Materials are one-component, ready-to-use electronic grade silicone sealants. They cure to a tough, resilient silicone rubber on exposure to atmospheric moisture at room temperature. These electronic-grade silicone adhesive sealants differ somewhat in physical properties including consistency.

- RTV160 - white flowable paste
- RTV162 - white paste
- RTV167 - gray, high strength paste

Key Features and Benefits

- Non-corrosive to electronic metals, including copper and brass
- Low odor cure, releasing an alcohol vapor from the sealant surface during cure
- UL Recognition. RTV160, RTV162 and 167 are recognized by Underwriters Laboratories, Inc. under their Component Recognition Program (UL File No. E-36952)
- Retains elastomeric properties for long periods at temperatures from -60°C (-75°F) to 205°C (400°F) and for short periods up to 260°C (500°F)
- One component
- Cure at room temperature
- Excellent electrical insulation properties
- Excellent resistance to moisture, dust, dirt, UV, ozone and chemicals

Typical Physical Properties

Typical Uncured Properties	RTV160	RTV162	RTV167
Color	White	White	Gray
Consistency	flowable liquid	spreadable paste	spreadable paste
Viscosity, poise	380	–	–
Specific Gravity	1.04	1.09	1.12
Application Rate, gm/min	–	350	180
Tack-Free Time, hours	4	4	4
Cured Properties(1)			
Mechanical			
Hardness, Shore A	25	35	37
Tensile Strength, kg/cm^2 (lb/in^2)	19 (275)	38.2 (550)	56 (800)
Elongation, %	230	400	600
Peel Strength, kg/cm (lb/in)(^{2})	2 (10)	7.2 (40)	10 (80)
Electrical (3)			
Dielectric Strength, kv/mm (v/mil)	20 (500)	18 (450)	20 (500)
Dielectric Constant @ 60 Hz	2.8	2.8	2.8
Dissipation Factor @ 60 Hz	.001	.001	.0026
Volume Resistivity, ohm-cm	4x10^{14}	3x10^{15}	3x10^{15}
Thermal(3)			
Brittle Point, °C (°F)	-60 (-75)	-60 (-75)	-60 (-75)
Maximum continuous operating temperature, °C (°F)	204 (400)	204 (400)	204 (400)
Maximum intermittent operating temperature, °C (°F)	260 (500)	260 (500)	260 (500)
Additional Information(3)			
Thermal Conductivity, cal/sec/cm^2, °C/cm	.0005	.0005	.0005
(Btu/hr/ft^2, °F/f)	(.12)	(.12)	(.12)
Coefficient of Expansion	27x10^{-5}	27x10^{-5}	27x10^{-5}
cm/cm, °C (in/in, °F)	(15x10^{-5})	(15x10^{-5})	(15x10^{-5})

(1) Cure time 7 days at 25°C (77°F), 50% relative humidity.

(2) 1 in. x 8 in. stainless steel screen at 180° pull angle.
(3) Information is provided for customer convenience only. Properties are not tested on a routine basis.

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

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.

Processing Recommendations

Applications

RTV160, RTV162 and RTV167 are recommended for use in aerospace, automotive, appliance and other industries which incorporate electronic components into a finished product. Electronic and integrated circuits, semiconductors and copper connections are typical applications.

RTV160 adhesive sealant is recommended for insulating, encapsulating and coating in thin sections [less than 6mm (1/4")], where flow into small crevices or hard-to-reach places is desired.

RTV162 adhesive sealant is recommended for sealing and bonding of electronic components onto printed circuit boards and protecting copper connections on

electronic parts assemblies.

RTV167 adhesive sealant is recommended for sealing and bonding where high strength would be required.

Surface Preparation

RTV160, RTV162 and RTV167 adhesive sealants will bond to many clean surfaces without the aid of primers. These surfaces normally include many metals, glass, ceramic, silicone rubber and some rigid plastics. These adhesive sealants will also bond to some organic rubbers and flexible plastics not containing fugitive plasticizers (those that 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. SS4004, SS4044 and SS4179 primers are recommended for use with RTV160, RTV162 and RTV167 sealants. 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 dry before applying the adhesive sealant.

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

Cure Time Cycle

RTV160, RTV162 and RTV167 adhesive sealants may be applied directly to a clean or primed substrate. The adhesive sealant begins to cure on exposure to moisture in the air at room temperature. Where broad surfaces are to be bonded the sealant should be applied in a thin, less than 6mm (¼ in.) diameter bead or ribbon around the edge of one of the surfaces.

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 (77°F) and 50% relative

humidity, these products will form a surface skin which is tack-free to the touch in about 4 hours. Once the tack-free skin has begun to form, further tooling of the adhesive sealant is not advisable.

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

As the adhesive sealant cures, alcohol vapors are released from the sealant surface. This by-product of cure has a slight, but non-objectionable odor which will completely disappear after curing is completed.

A 3mm (1/8 in.) section of adhesive sealant will cure through in approximately 48 hours at 25°C (77°F) and 50% relative humidity. Since cure time increases with thickness, use of RTV160, RTV162 and RTV167 sealants should be limited to section thicknesses of 6mm (¼ in.) or less.

PACKAGING AND DISPENSING

RTV160, RTV162, RTV167 adhesive sealants are supplied in caulking cartridges and bulk containers. RTV162 and RTV167 are also available in collapsible squeeze tubes.

Tubes may be squeezed by hand or with the aid of mechanical wringers which allow more complete removal of material from the tube. 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 minimum capital investment.

Note: Do not exceed 45 psig when used in air-powered caulking guns.Bulk containers offer the most economical packaging for volume production.

Bulk dispensing systems are air-operated extrusion pumps coupled to hand or automated dispensing units.

Recommendations for pump selection and assistance in converting lines from other

silicone systems to the RTV160, RTV162 and RTV167 alkoxy cure system sealants are available from Momentive Performance Materials.

CLEAN UP AND REMOVAL

Before cure, solvent systems such as naphtha or methyl ethyl ketone (MEK) are effective.

Limitations

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

Specifications

MILITARY SPECIFICATIONS

RTV162 and RTV167 sealants meet the physical requirements of MIL-A-46146. Testing is performed in accordance with current Momentive Performance Materials 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 MIL-A-46146. Any certification will be limited to listed properties and will not imply or state conformity to any other aspect of MIL-A-46146, including but not limited to marking, packaging, bar coding, testing, or sampling. Contact Momentive Performance Materials for a comparison review.

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