Technical Data Sheet

SILTRUST™ RTV142 ADHESIVE SEALANT

Description

SILTRUST RTV142 one-component, ready-to-use adhesive sealant cures to a tough, durable, resilient silicone rubber on exposure to atmospheric moisture at room temperature. Methyl alcohol vapors are released from the sealant surface as a by-product of cure. These vapors have low odor and are non-corrosive to metals. An important property of SILTRUST RTV142 is its low volatility.

SILTRUST RTV142 sealant has a thixotropic paste consistency. This allows it to be applied to vertical and overhead surfaces without sagging. Since it utilizes a moisture cure system, SILTRUST RTV142 sealant should not be used in thicknesses of greater than 6mm (¼ inch). When section depths exceed 6mm (¼ inch), Momentive Performance Materials one-component, addition cure or two-component silicone rubber compounds are suggested.

Key Features and Benefits

- One-component product
- Room temperature cure
- Primerless adhesion to many substrates
- Low odor
- Non-corrosive to metals
- Low volatility
- Low temperature flexibility
- High temperature performance
- Excellent weatherability, ozone and chemical resistance

- Excellent electrical insulation properties

Typical Physical Properties

Uncured Properties	**SILTRUST RTV142**
Consistency	Paste
Color	White
Application Rate, g/min	975
Specific Gravity	1.09
Tack-Free Time, hours	4
Cured Properties (1)	**SILTRUST RTV142**
Mechanical:	
Tensile Strength, kg/cm^2 (lb/in^2)	38.5 (550)
Percent Elongation	400
Hardness, Shore A	34
Tear Strength, kg/cm (lb/in) (5)	9 (50)
Shear Strength, kg/cm^2 (lb/in^2) **(2)**	21.0 (300)
Peel Strength, kg/cm (lb/in) **(3)**	10.5 (60)
Total Weight Loss % (4)	0.22
Volatile Condensable Materials % **(4)**	0.05
% Linear Shrinkage (5)	< 1.0
Electrical: (5)	
Dielectric Strength, Kv/mm (v/mil)	20 (500)
Dielectric Constant @ 60 Hz	2.8
Dissipation Factor @ 60 Hz	0.001
Volume Resistivity, ohm-cm	4.5 x 10^{15}
Thermal: (5)	
Continuous Operating Temperature Range ºC (ºF)	-60 to 204 (-75 to 400)
Coefficient of Expansion, cm/cm, ºC (in/in, ºF)	2.7 x 10^{-4} (1.5 x 10^{-4})
Thermal Conductivity, W/mK (cal/sec/cm^2, ºC/cm)	0.21 (0.0005)

- (1) Cure time 10 days @ 25ºC (77ºF)/50% RH.
- (2) At 100% cohesive failure.
- (3) At 100% cohesive failure using 1 in. x 8 in. stainless steel screen at 180º pull angle
- (4) ASTM E595 Standard Test Method.
- (5) Information is provided for customer convenience. These properties are not tested on a routine basis

Potential Applications

The non-corrosiveness to metals and low volatility of SILTRUST RTV142, as well as its paste consistency, make it well suited for critical electronic adhesive, gasketing and sealing applications where a high level of volatile condensible materials cannot be tolerated.

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 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: Surface Preparation

SILTRUST RTV142 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. These adhesive sealant products may also produce acceptable bonds to organic rubber and to some flexible plastics not containing fugitive plasticizers (those that migrate to the surface, impairing adhesion). An evaluation should be made to determine whether acceptable bond strength develops for each specific application. For difficult-to-bond substrates, use of a primer is suggested. Primers SS4004P, SS4044P 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.

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

SILTRUST RTV142 sealant can be applied directly to clean or primed substrates. Where broad surfaces are to be mated, the sealant should be applied in a thin diameter (less than ¼ inch 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 RTV. At 25ºC (77ºF) and 50% relative humidity, SILTRUST RTV142 sealant will form a surface skin which is tack-free to the touch in 4 hours. 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. Do not exceed 110ºF when curing materials.

As the adhesive sealant cures, methyl alcohol vapors are released from the sealant surface.

A 3mm (1/8 in.) section of adhesive sealant will cure through in approximately 48 hours at 25ºC (77ºF) and 50% R.H. Since cure time increases with thickness, use of these adhesive sealants should be limited to section thicknesses of 6mm (¼ 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 48 hours to permit handling of parts. Minimum stress should be applied to the bonded joint until full adhesion is developed. 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

SILTRUST RTV142 adhesive sealant is supplied in 6 oz. (nominal size) SEMCO® cartridges and is sold on a volume basis of 5.4 fluid ounces (160 ml) per cartridge.

The SEMCO cartridge is designed for use with a hand or air-operated sealant gun manufactured by the SEMCO Company.

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 the other manufacturers.

SEMCO is a registered trademark of the SEMCO Company.

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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