Technical Data Sheet

RTV128

Description

RTV122, RTV123 and RTV128 adhesive sealants are one-component, ready-to-use, and cure to a tough, resilient silicone rubber on exposure to atmospheric moisture at room temperature.

Typical applications include, but are not limited to, sealing vertical joints bonding dissimilar materials such as metal to plastic and glass to aluminum electrical insulation of wires and terminals and formed-in-place gasketing.

The following adhesive sealants are identical except for color:

- RTV 122: White
- RTV 123: Black
- RTV 128: Translucent

Key Features and Benefits

- Primerless adhesion to many metals and plastics*.
- Non-corrosive to aluminum and steel per MIL-A-46146A+.
- Lower odor cure than conventional acetoxy silicone sealants.
- UL Recognition. Recognized by Underwriters' Laboratories, Inc. under their Component Recognition Program (UL File No. E-36952).
- One component.
- Cures at room temperature.
- Excellent electrical insulation properties.
- Retains elastomeric properties at temperatures of -60ºC(-75ºF) to 204ºC (400ºF) for long periods and to 260ºC (500ºF) for short periods.
- Excellent weatherability, ozone, and chemical resistance.

- * Do not use with polycarbonate. Ammonia and alcohol are by-products of cure. Ammonia may cause crazing of the polycarbonate.
- + Non-corrosive to aluminum and steel per MIL-A-46146A. Will discolor sensitive metals such as copper and brass when tested per MIL-A-46146A. If you require a sealant that does not discolor copper and brass, suitable sealants are available from Momentive Performance Materials.

Typical Physical Properties

Typical Uncured Properties	**RTV122, RTV123, RTV128**
Color	• RTV122: White • RTV123: Black • RTV128: Translucent
Consistency	Thixotropic Paste
Specific Gravity	1.04
Application Rate, gm/min 3.2 mm orifice @ 621 kPa(0.125 in orifice @ 90 psi)	500
Tack Free Time, minutes[1]	20
Cure Through Time, hours[1]	24
Typical Cured Properties(1) (3 days)	**RTV122, RTV123, RTV128**
Mechanical:	
Hardness, Shore A Durometer	30
Tensile Strength,MPa (lb/in^2)	1.72 (250)
Elongation, %	350
Tear Strength, kN/m (lb/in) (3)	6.1 (35)
Peel Strength, kN/m (lb/in) (4)	7.0 (40)
Electrical: (2)	
Dielectric Strength kv/mm (v/mil)	20 (500)
Dielectric Constant @ 60 Hz	2.8
Dissipation Factor @ 60 Hz	0016

Volume Resistivity, ohm-cm	4 x 10^{15}
Thermal: (2)	
Brittle Point, °C (°F)	-60 (-75)
Thermal Conductivity, W/mK (Btu.hr.ft^2, °F ft)	0.21 (.12)
Coefficient of Expansion cm/cm °C (in/in, °F)	27 x 10^{-5} (15 x 10^{-5})

- (1) @ 25ºC (77ºF) /50% RH
- (2) Information is provided for customer convenience. Their properties are not tested on a routine basis.
- (3) Aluminum to stainless steel screen, 25mm.(1 in.) overlap
- (4) Using 25mm x 647mm (1in x 8 in.) stainless steel screen at 180° pull angle on Alclad 2024 aluminum.

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

Surface Preparation

RTV122, RTV123 and RTV128 adhesive sealants display primerless adhesion to many metals, rigid plastics and glass.

Typical values for primerless adhesion for RTV128 adhesive sealant include:

	Peel Adhesion* (3 day cure) kN/m (lb/in)
Aluminum (Alclad 2024)	7.0 (40)
Cold Rolled Steel	7.0 (40)
Glass	6.1 (35)
Glass Filled Polyester (FRP)	7.9 (45)
Epoxy	7.0 (40)
Rigid PVC	7.0 (40)

* Per ASTM D-903 cured as specified at 25ºC (77ºF) /50% RH using 25mm x 647mm (1 in. x 8 in.) stainless steel screen at 180° pull angle.

When adhesion is important, surfaces must be cleaned to remove dirt, oil, grease and surface contaminents. For metals and glass, suitable solvents such as naphtha, methyl ethyl ketone (MEK), or 1,1,1- trichloroethane should be used. For plastics, a cleaning agent that is compatible with the specific plastic should be used. All surfaces should be wiped dry before applying the adhesive sealant.

Due to substrate variability, an evaluation should be made to determine bond strength for each specific application. If adhesion testing shows that a stronger bond is desired, use of a primer is suggested. SS4004, SS4044, and SS4179 primers from Momentive Performance Materials are recommended for use with these sealants.

SS4179 primer is recommended for evaluation where a stronger bond is desired on a plastic surface. SS4004 and SS4044 general purpose primers are for non-plastic surfaces. SS4004 and SS4044 primers are identical products, differing only in color.

Application and Cure Time Cycle

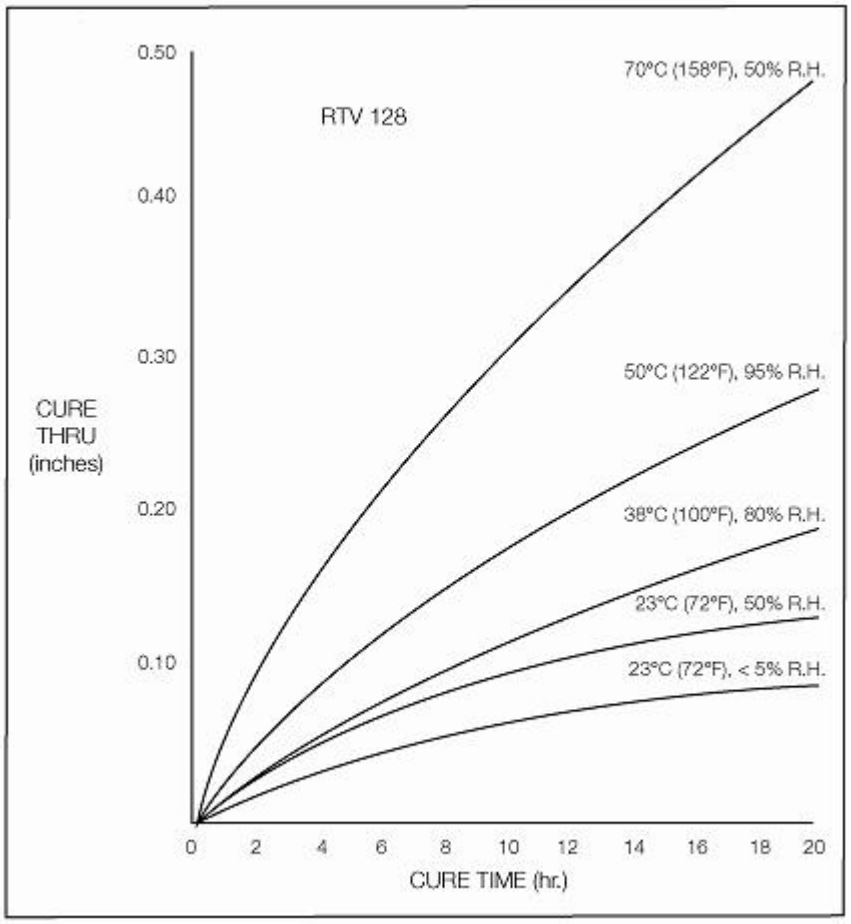
RTV122, RTV123 and RTV128 adhesive sealants may be applied directly to clean or primed substrates. Where broad surfaces are to be mated, the sealant should be applied in a thin, less than 6mm (1/4 in.) diameter, bead or ribbon around the edge of the surface to be bonded.

These adhesive sealants utilize a moisture vapor cure system which releases an alcohol and residual ammonia from the sealant surface during cure.

The cure process begins with the formation of a skin on the exposed surface of the sealant and progresses inward through the material. At 25ºC (77ºF) and 50% relative humidity, these adhesive sealants will form a surface skin that is tack free to the touch in 20 minutes. Once the tack free skin has begun to form, no further tooling of the adhesive sealant is recommended.

Because N-SIL adhesive sealants cure by reacting with atmospheric moisture, high humidity will accelerate the cure process, and low humidity will slow the cure rate. Moderate temperature elevation accompanied by elevated humidity will also accelerate the cure rate as illustrated below:

CURE CHARACTERISTICS VS. TIME**



** Samples spread in 2 inch diameter aluminum cups.

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Exact cure time will depend on temperature, humidity, sample thickness and sealant configuration. Since cure time increases with thickness, use of these adhesive sealants typically should be limited to section thicknesses of 6mm (1/4 in.) or less. For applications requiring section thicknesses of greater than 6mm (1/4 in.), two component RTV compounds from Momentive Performance Materials should be evaluated. Contact Momentive Performance Materials technical assistance for applications requiring thicknesses greater than 25mm (1/4 in.)

Physical Property 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. Stress should not 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 adhesive sealant itself. Always allow maximum cure time available for best results.

After extended time periods at temperatures in excess of 100ºC (212ºF), yellowing of RTV122 and RTV128 may be noticed. The yellowing constitutes a color change only and is not of itself an indication of a loss of elastomeric or electrical properties.

PACKAGING AND DISPENSING

The sealant may be dispensed from caulking cartridges by using hand operated 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 310 kPa (45 psi) when using air-powered caulking guns.Bulk containers offer the most economical packaging for volume production.

Bulk delivery systems are air operated extrusion pumps which can be coupled to hand or automatic units.

CLEAN UP AND REMOVAL

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

After cure, solvent systems such as toluene or xylene will swell the RTV silicone sealant and facilitate mechanical removal by scraping.

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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For literature and technical assistance, visit our website at: www.momentive.com

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