Technical Data Sheet

RTV5818

Description

RTV5810 series sealants are neutral cure, one-component, ready-to-use silicone adhesive sealants that cure to tough resilient silicone rubber on exposure to atmospheric moisture at room temperature.

These sealants are fast curing, paste consistency products that may be considered for use where quick initial adhesion build is desired. This may allow for movement of the sealed assemblies in a shorter period of time, increasing productivity.

Key Features and Typical Benefits

- Primerless adhesion to many metals and plastics
- Non-corrosive to most substrates
- Low odor cure
- Good confined cure properties
- One-component product - No mixing required
- Retains elastomeric properties at temperatures of -60ºC (-75ºF) to 204ºC (400ºF) for long periods, and to 260ºC (500ºF) for short periods
- Room temperature cure
- Excellent electrical insulation properties
- Excellent UV, chemical and weather resistance

Typical Physical Properties

Typical Uncured Properties	RTV5810 Series

Color	
RTV5813	Black
RTV5818	Translucent
Consistency	Paste
Specific Gravity	1.04
Application Rate, gm/min.	360
Tack Free Time, minutes	15
Cure Through Time, hours	12
Typical Cured(1) Properties	**RTV5810 Series**
Mechanical:	
Hardness, Shore A	24
Tensile Strength, $kg/cm^2(lb/in^2)$	21 (300)
Elongation, %	435
Tear Strength, kg/cm (lb/in)	7.1 (40)
Peel Strength, kg/cm (lb/in)	8 (47)
Glass	7.5 (42)
Aluminum	8.6 (48)
Lexan Polycarbonate*	7.1 (40)
PVC	8.0 (45)
Electrical:(2)	
Dielectric Strength, kV/mm(V/mil)	17 (425)
Dielectric Constant @ 100 Hz	2.8
Dissipation Factor @ 100 Hz	0002
Volume Resistivity, ohm-cm	$2x10^{15}$
Thermal:(2)	
Brittle Point, °C (°F)	-60 (-75)
Thermal Conductivity, W/m K (Btu ft/ft^2 h °F)	0.06 (0.10)
Coefficient of Thermal Expansion, mm/mm/°C	3.0×10^{-4}

- (1) Cured 7 days at 25°C (77°F) and 50% relative humidity.
- (2) Information is provided for customer convenience. These properties are not tested

on a routine basis.

- *Lexan is a trademark of SABIC Innovative Plastics IP BV.

Typical properties are average data and are not to be used as or to develop specifications.

Potential Applications

These paste-consistency silicone sealants can be used in thickness up to 6mm (1/4 in.) for bonding and sealing, joining metals and plastics, and electrical insulation.

For applications requiring sealant thickness greater than 6mm (1/4 in.), Momentive Performance Materials one-component, addition cure or two-component silicone rubber compounds are recommended.

Processing Recommendations

Surface Preparation

RTV5810 series 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.

Surfaces should be thoroughly cleaned with a suitable solvent to remove dirt, oil, grease and surface contaminants. The surface should be wiped dry before applying the adhesive sealant. When solvents are used, proper safety precautions must be observed.

Due to substrate variability, 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. SS4004P, SS4044P and SS4179 primers from Momentive Performance Materials may be considered for use with these sealants. Complete information and usage instructions for these primers are contained in a separate product data sheet.

Cure Time Cycle

These 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.

The cure process begins with the formation of a skin on the exposed surface of the sealant and progresses inward through the material. Due to its fast curing nature, at 77°F/50% RH RTV5810 adhesive sealants will form a skin and become tack free typically in 15-20 minutes. Once the tack free skin has begun to form, further tooling of the adhesive sealant is not recommended.

As the adhesive sealant cures, methly alcohol and residual ammonia vapors are released from the sealant surface.

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

Exact cure time will depend on temperature, humidity, sample thickness and sealant configuration. Since cure time increases with thickness, use of these adhesive sealants should be limited to section thickness of 6mm (1/4 in.).

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. Typically, sufficient bond strength will develop in 4-6 hours for RTV5810 adhesive sealants to permit handling of parts. Stress should not be applied to the bonded joint until full adhesive strength has developed. Always allow maximum cure time available for best results.

Non-corrosive Properties

RTV5810 series adhesive sealants generally comply with the non-corrosive requirements of MIL-A-46146B on aluminum and steel.

When allowed to cure in enclosed conditions, these sealants will discolor sensitive metals such as copper and brass. When allowed to cure in non-enclosed conditions, these sealants may discolor sensitive metals such as copper and brass but only when in direct contact.

Packaging and Dispensing

These sealants may be dispensed from caulking cartridges by using hand operated caulking guns or air operated guns. Air operated guns may allow greater control and application speed.

NOTE: Do not exceed 45 psig when using air powered caulking guns.

Bulk dispensing systems are air-operated extrusion pumps coupled to hand or automated dispensing units. Pumps that are specifically designed for pumping one-component RTV silicone rubber have Teflon® seals, packages and Teflon® lined hoses to prevent moisture permeation and pump cure problems.

TEFLON is a Registered Trademark of DuPont.

Cleanup and Removal

Before cure, solvent systems such as naphtha are typically most effective. After cure, selected chemical strippers that will remove the silicone rubber are available from other manufacturers. Specific product information may be obtained on request.

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.

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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