

RTV8111

Description

RTV8111, RTV8112 and RTV8262 silicone rubber compounds are two-part silicone elastomers supplied in ready-to-use matched kits containing a base compound and curing agent.

Key Features and Benefits

- Conforms to the physical and electrical requirements of MIL-S-23586E
- Non-corrosive to copper
- Retention of elastomeric properties at high temperature up to 204°C (400°F) continuously for RTV8111 and RTV8112 up to 260°C (500°F) continuously for RTV8262
- Excellent adhesion capabilities when used with primer
- Room temperature cure
- Composition free of solvents

Typical Physical Properties

| UNCURED PROPERTIES OF RTV BASE COMPOUNDS | RTV8111 | RTV8112 | RTV8262 |
|--|-----------------|-----------------|----------|
| Color | White | White | Red |
| Consistency | Easily Pourable | Easily Pourable | Pourable |
| Viscosity, cps | 9900 | 11,000 | 47,000 |
| Specific Gravity | 1.18 | 1.19 | 1.47 |

| TYPICAL PROPERTIES OF CURING AGENTS | RTV9891 | RTV9858 |
|--|----------------|----------------|
| Color | Light Blue | Off-White |
| Consistency | Pourable | Pourable |
| Viscosity, cps | 170,000 | 44,000 |
| Specific Gravity | 1.77 | 1.61 |
| Active Catalyst | STO | DBT |

| TYPICAL UNCURED PROPERTIES WITH CURING AGENT ADDED | RTV8111 / RTV9891 | RTV8112 / RTV9858 | RTV8262 / RTV9858 |
|--|---|---|---|
| Curing Agent Added, weight % | 2 - 4 | 5 - 7 | 5 - 7 |
| Pot Life @ 25°C (77°F) hours | 0.5 | 2 | 2 |
| Cure Time @ 25°C (77°F) hours | 24 | 24 | 24 |
| TYPICAL CURED PROPERTIES (Cured 72 hours @ 25°C (77°F) and 50% R.H.) | RTV8111 | RTV8112 | RTV8262 |
| Mechanical | | | |
| Hardness, Shore A Durometer | 45 | 42 | 52 |
| Tensile Strength, kg/cm ² (psi) | 25 (350) | 21 (300) | 41 (580) |
| Elongation, % | 160 | 160 | 150 |
| Tear Strength, kg/cm (lb/in) | 4.3 (24) | 4.8 (27) | 7.7 (43) |
| Linear Shrinkage, % | 1.0 | 1.0 | 0.6 |
| Electrical | | | |
| Dielectric Strength, kv/mm (v/mil) (1.9 mm thick) | 19.7 (500) | 18.7 (475) | 18.5 (470) |
| Dielectric Constant @ 103 Hz | 3.3 | 4.02 | 3.98 |
| Dissipation Factor @ 103 Hz | 0.0055 | 0.007 | 0.017 |
| Volume Resistivity, ohm-cm | 1 x 10 ¹⁵ | 2.7 x 10 ¹⁵ | 4.4 x 10 ¹⁴ |
| Thermal | | | |
| Useful Temperature Range, °C (°F) | -54 to 204 (-65 to 400) | -54 to 204 (-65 to 400) | -54 to 260 (-65 to 500) |
| Thermal Conductivity (W/m-K) | 0.29 | 0.29 | 0.29 |
| Coefficient of Linear Expansion, cm/(cm°C), (in/(in°F)) | 25 x 10 ⁻⁵ (14 x 10 ⁻⁵) | 25 x 10 ⁻⁵ (14 x 10 ⁻⁵) | 20 x 10 ⁻⁵ (11 x 10 ⁻⁵) |
| Specific Heat, cal/(gm°C) , (BTU/lb, °F) | 0.35 (0.35) | 0.35 (0.35) | 0.35 (0.35) |
| MIL-S-23586E SPECIFICATION LIMITS (Cured 72 hours @ 23 ± 2°C and 50% ± 5% R.H.) | Type I, Class 1 Grade B1 | Type I, Class 2 Grade A | Type II, Class 2 Grade A |
| Suggested Momentive Performance Materials Product | RTV8111 | RTV8112 | RTV8262 |
| Viscosity, cps | 20,000 max | 20,000 max | 20,000 - 200,000 |

| | | | |
|--|-------------|------------|------------|
| Pot Life, hours | 0.25 - 0.75 | 1 - 3 | 1 - 3 |
| Hardness, Shore A Durometer, min | 40 | 35 | 45 |
| Tensile Strength, kg/cm ² (psi), min. | 17.6 (250) | 17.6 (250) | 22.9 (325) |
| Elongation, %, min. | 100 | 100 | 100 |
| Dielectric Strength, kv/mm (v/mil), min. | 15.7 (400) | 15.7 (400) | 15.7 (400) |

Potential Applications

Typical applications include, but are not limited to the potting of electronic circuit modules, electrical connectors and coils, and other applications in electronics, military/defense and commercial aerospace industries.

Patent Status

Standard copy to come

Product Safety, Handling and Storage

Standard copy to come

Processing Recommendations

Select a mixing container 4 to 5 times larger than the volume of RTV silicone rubber compound to be used. Weigh out the RTV silicone rubber base compound and add the appropriate amount of curing agent. Using clean tools, thoroughly mix the RTV base compound and the curing agent, scraping the sides and bottom of the container carefully to produce a homogeneous mixture. When using power mixers, avoid excessive speeds which could entrap large amounts of air or cause overheating of the mixture, resulting in shorter pot life.

Deaeration

Air entrapped during mixing should be removed to eliminate voids in the cured product. Expose the mixed material to a vacuum of about 25 mm (29 inches) of mercury. The material will expand, crest, and recede to about the original level as the bubbles break. Degassing is usually complete about two minutes after frothing ceases. When using the

RTV silicone rubber compound for potting, a deaeration step may be necessary after pouring to avoid capturing air in complex assemblies.

Instead of the above procedure, because of the short pot life of RTV8111/RTV9891 mixtures, mixing under vacuum or using a static mixer may be necessary to eliminate trapped air.

Curing

Using the curing agent levels prescribed, RTV8111, RTV8112 and RTV8262 silicone rubber compounds will cure in 24 hours at 25°C (77°F) and 50% relative humidity to form durable, resilient rubbers. Pot life of catalyzed compounds may be lengthened by refrigeration. Slight adjustments to the pot life and cure rate may also be made by changing the curing agent levels within the limits listed in the curing agent table.

Bonding

If adhesion is an important application requirement, RTV8111, RTV8112 and RTV8262 silicone rubber compounds require a primer to bond to non-silicone surfaces. Clean the substrate thoroughly with a non-oily solvent such as naphtha or methyl ethyl ketone (MEK) and let dry. Then apply a uniform thin film of a suitable silicone primer such as SS4004P. Allow the primer to air dry for one hour or more. Apply freshly catalyzed RTV silicone rubber compound to the primed surface and cure as recommended.

Limitations

Standard copy to come

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