



Adhesive-Sealer, Silicone Rubber, One Part RTV

1 Scope

This specification details the requirements and properties of Room Temperature Vulcanizing (RTV) silicone rubber compositions that are suitable to use as supplied as an adhesive or sealer.

1.1 Material Description. Catalyst, heat, or pressure is not needed to initiate vulcanization. Once applied, the material begins to react with atmospheric moisture and immediately begins curing to a rubber-like product.

1.1.1 Adhesion of the material is very good to most plastics. In some cases, a primer may be needed to give maximum performance.

1.1.2 Most RTVs are compatible with most plastics, however, new applications should reconfirm that the new substrate is not crazed, degraded, or otherwise attacked by the RTV.

1.1.3 The cure mechanism is a non-acidic (i.e., neutral) cure. By-products of the curing process shall not corrode, stain, or otherwise adversely affect decorated second surface acrylic or other plastic inserts.

1.1.4 Mixing of various cure systems in the same pumping system could cause cure inhibition. This can be resolved by purging the pumping system with the new material, and then monitoring the appearance, color, odor, and tack time to ensure uniformity of the adhesive.

1.2 Symbols. Not applicable.

1.3 Applicability. Typical uses for RTVs are bonding second surface acrylic, adhering cast urethane decorative inserts into mating bezels, and assembling decorative trim, both interior and exterior.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

ASTM C603	ASTM D412	ASTM D903	ASTM D2240
ASTM C679	ASTM D792	ASTM D2202	

2.2 GM Standards/Specifications.

GMW3059	GMW14444	GMW15735	GMW16853
GMW3221			

2.3 Additional References.

TMC003 Material Safety Data Sheet guidance documents (available at www.gmsupplypower.com).

3 Requirements

3.1 Requirements on Test Specimens. Reference GMW3221.

3.2 Emissions Testing of Interior Materials and Parts. For all Code E designated parts per GMW14444, reference GMW16853 for emissions testing of interior materials and parts.

3.3 Toxicity. The toxicity shall be disclosed, in kind and magnitude, as required by the GM Material Safety Data Sheet (MSDS). In addition, the material must have full approval of the appropriate medical department prior to production use.

3.4 Stability (GMW15735). Material conditioned using potential storage conditions must be capable of passing all of the requirements of this specification.

3.4.1 Elevated Temperature Stability. As shipped, the adhesive must be capable of withstanding a temperature of 60 °C for 72 h without separation or caking.

3.4.2 Low Temperature Stability. As shipped, the adhesive must be capable of withstanding three cycles of the applicable cycle schedule outlined in GMW15735.

3.4.3 Storage Stability. The shelf life of the adhesive in closed containers shall be 180 days at temperatures not to exceed 35 °C. Shelf life of the material commences upon the receipt of the material from the manufacturer.

3.5 Material Properties - Uncured Adhesive. See Table 1.

Table 1: Material Properties – Uncured Adhesive

Properties	Value	Test Methods
Color	Translucent/Gray/Black	Visual
Extrusion Rate, grams (g)/minute	100 to 500	ASTM C603
Tack Free Time, minutes, maximum	60	ASTM C679
Cure Time, 3.2 mm diameter bead at 25 °C, 50% RH, hours, maximum	48	Visual examination of a cross section of the bead
Flowability, 3 minutes, millimeters (mm), maximum	6	ASTM D2202

RH = Relative Humidity

3.6 Material Properties – Cured Adhesive. See Table 2.

3.6.1 Cured RTV. Material must be cured for 168 h at 25 °C, 50% relative humidity (RH) prior to testing.

Table 2: Material Properties - Cured Adhesive

Properties	Value	Test Methods
Specific Gravity at 25 °C	1.00 to 1.50	ASTM D792, Method A
Durometer, Shore A, minimum	15	ASTM D2240
Tensile Strength, kilopascals (kPa), minimum	1000	ASTM D412, Die C
Elongation, percent (%), minimum	300	ASTM D412, Die C

3.7 Adhesive Properties.

3.7.1 Test specimens, prepared as specified in the designated procedure, must meet the requirements listed in Table 3.

3.7.2 When properly dispensed and applied to the intended device, the adhesive properties must be such that the device will pass all the performance parameters as listed on the part print. The performance parameters are intended as the final determination for suitability of the raw material, but are not to be considered material properties.

3.8 Quality Assurance Testing. The following tests could be performed on incoming lots of material in order to determine conformance to specifications.

3.8.1 Extrusion Rate per Table 1.

3.8.2 Tack Free Time per Table 1

3.8.3 Cure Time per Table 1.

3.8.4 Specific Gravity per Table 2.

3.8.5 Durometer per Table 2.

3.8.6 Peel Strength per Table 3.

3.8.7 Other tests may be required to validate a specific application.