



## Adhesives

# Dow Corning® Q3-6093 RTV Adhesive Kit

### FEATURES

- Non-flowing
- Cures in deep section or in confinement at RT

### BENEFITS

- RT cure, no ovens required
- Faster RT cure to reduce inline processing

### POTENTIAL USES

- Sealing lids and housings
- Attaching baseplates
- Gasketing

### APPLICATION METHODS

- Automated or manual needle dispensing systems.

**2-part, black, 10:1 mix ratio, non-flowing adhesive**

### **TYPICAL PROPERTIES**

Specification Writers: Please contact your local Dow Corning sales office or your Global Dow Corning Connection before writing specifications on this product.

<b>Property</b>	<b>Unit</b>	<b>Value</b>
Specific Gravity (Uncured Part A or Base)	-	1.37
Working Time at 25°C (Snap Time)	min	26
Cure Time at 25°C	hrs	6
Tensile Strength	psi MPa kg/cm2	235 1.6 16
Elongation	%	235
Durometer Shore A	-	45
Tensile Modulus	psi MPa kg/cm2	100 0.7 7
Unprimed Adhesion - Lap Shear (Al)	psi MPa kg/cm2	270 1.9 19
Cohesive Failure	%	100
Hardening Transition by DSC	°F °C	0 0
Shelf Life at 25°C	months	12

## DESCRIPTION

Dow Corning two-part RTV adhesives cure rapidly at room temperature after mixing thereby offering the processing speed benefits of heat (addition) cure adhesive with the capital and energy cost savings of moisture-curing RTV adhesives. Good strength is attained within an hour but full physical properties are not reached for several days. These adhesives contain their own source of moisture so cure progresses evenly throughout the material and deep-section or confined space cures are possible. However, some cure situation limitations may exist - refer to the "Reversion" section of this datasheet for additional information. Working time is only a few minutes so these adhesives are best suited for fast-processing of electronic components. Dow Corning silicone adhesives retain their original physical and electrical properties over a broad range of operating conditions which enhance the reliability of and service life of electronic devices. The stable chemistry and versatile processing options of these adhesives offer benefits for a variety of electronics needs from increasing component safety and reliability, reducing total cost or increasing the performance envelope of devices or modules.

## MIXING AND DE-AIRING

Upon standing, some filler may settle to the bottom of the liquid containers after several weeks. To ensure a uniform product mix, the material in each container should be thoroughly mixed prior to use. Automated airless dispense equipment can be used to reduce or avoid the need to de-air. If de-airing is required to reduce voids in the cured elastomer, consider a vacuum de-air schedule of >28 inches Hg for 10 minutes or until bubbling subsides.

## REVERSION

When two-part condensation curing materials with organotin catalysts, such as Dow Corning® Q3-6093 RTV Adhesive, are cured in

confinement (especially in deep section) and are later subjected to high heat conditions, they can potentially revert from a cured elastomer to a flowable polymer. Although this condition is unusual, parts using two-part condensation cure adhesives should be thoroughly tested in accelerated temperature conditions for this potential limitation.

## STORAGE AND SHELF LIFE

For best results, Dow Corning RTV adhesives should be stored at or below 25°C (77°F). Special precautions must be taken to prevent moisture from contacting these materials. Containers should be kept tightly closed with head or air space minimized. Partially filled containers should be purged with dry air or other gases, such as nitrogen. Shelf life is indicated by the "Use Before" date found on the product label.

## PREPARING SURFACES

All surfaces should be thoroughly cleaned and/or degreased with Dow Corning® brand OS Fluids, naphtha, mineral spirits, methyl ethyl ketone (MEK) or other suitable solvent. Solvents such as acetone or isopropyl alcohol (IPA) do not tend to remove oils well, and any oils remaining on the surface may interfere with adhesion. Light surface abrasion is recommended whenever possible, because it promotes good cleaning and increases the surface area for bonding. A final surface wipe with acetone or IPA is also useful. Some cleaning techniques may provide better results than others; users should determine the best techniques for their particular applications.

## SUBSTRATE TESTING

Due to the wide variety of substrate types and differences in substrate surface conditions, general statements on adhesion and bond strength are impossible. To ensure maximum bond strength on a particular substrate, 100 percent cohesive failure of the adhesive in a lap shear

or similar adhesive strength test is desired. This ensures compatibility of the adhesive with the substrate being considered. Also, this test can be used to determine minimum cure time or can detect the presence of surface contaminants such as mold release agents, oils, greases and oxide films.

## ADHESION

Dow Corning silicone adhesives are specially formulated to provide unprimed adhesion to many reactive metals, ceramics and glass, as well as to selected laminates, resins and plastics. However, good adhesion cannot be expected on non-reactive metal substrates or non-reactive plastic surfaces such as Teflon®, polyethylene or polypropylene. Special surface treatments such as chemical etching or plasma treatment can sometimes provide a reactive surface and promote adhesion to these types of substrates. Dow Corning® brand Primers can be used to increase the chemical activity on difficult substrates. Poor adhesion may be experienced on plastic or rubber substrates that are highly plasticized, because the mobile plasticizers act as release agents. Small-scale laboratory evaluation of all substrates is recommended before production trials are made.

## USEFUL TEMPERATURE RANGES

For most uses, silicone elastomers should be operational over a temperature range of -45 to 200°C (-49 to 392°F) for long periods of time. However, at both the low- and high temperature ends of the spectrum, behavior of the materials and performance in particular applications can become more complex and require additional considerations. For low-temperature performance, thermal cycling to conditions such as -55°C (-67°F) may be possible, but performance should be verified for your parts or assemblies. Factors that may influence performance are configuration and stress sensitivity of components, cooling rates and hold times, and prior temperature history.

At the high-temperature end, the durability of the cured silicone elastomer is time and temperature dependent. As expected, the higher the temperature, the shorter the time the material will remain useable.

### **SOLVENT EXPOSURE**

When liquid or vapor solvent or fuel exposure can occur in an application, the silicone adhesive discussed in this brochure is intended only to survive splash or intermittent exposures. It is not suited for continuous solvent or fuel exposure. Testing should be done to confirm performance of the adhesives under these conditions.

### **PACKAGING**

In general, Dow Corning adhesives/sealants are supplied in nominal 0.45-, 3.6-, 18- and 200-kg (1-, 8-, 40- and 440-lb) containers, net weight. Not all products may be available in all packages and some additional packages, such as a bladder packs or tubes, may be available for certain package sizes.

### **HEALTH AND ENVIRONMENTAL INFORMATION**

To support customers in their product safety needs, Dow Corning has an extensive Product Stewardship organization and a team of Product Safety and Regulatory Compliance (PS&RC) specialists available in each area. For further information, please see our website, [www.dowcorning.com](http://www.dowcorning.com), or consult your local Dow Corning representative.

### **LIMITATIONS**

These products are neither tested nor represented as suitable for medical or pharmaceutical uses.

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### **For More Information**

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