

## Product Information

# Silicone Sealants

DOW CORNING

## *Dow Corning*<sup>®</sup> 902 RCS Joint Sealant

### FEATURES

- Rapid cure
- Easy to use
- Convenient disposal pak
- High movement capability
- Seals irregular surfaces
- Ultra-low modulus
- Fully elastic
- Good weatherability
- Long-life reliability
- All-temperature gunnability
- Bonds to itself
- Curbs – While self-leveling, can be installed in vertical curb joints when proper damming techniques are used

### COMPOSITION

- Two-part silicone rubber

### Rapid-cure, self-leveling, two-part silicone rubber sealant designed to seal expansion joints

### APPLICATIONS

*Dow Corning*<sup>®</sup> 902 RCS Joint Sealant is primarily intended for use in expansion joints found on bridges that vary in width from 1 to 3 inches (25 to 76 mm) at the time of sealing. Wider joints can be sealed; contact your Dow Corning representative for recommendations. The substrate may be concrete/concrete, concrete/steel or steel/steel.

*Dow Corning* 902 RCS Joint Sealant can be used as the original sealant in new construction or as a remedial repair sealant in existing construction. In new construction, it provides a long-lasting seal that will prolong the life of the structure.

For use in repair or remedial applications where other joint sealing materials have failed, it can be used to seal irregularly shaped or minor spalled joints.

### TYPICAL PROPERTIES

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

Test	Unit	Result	
<b>As Supplied</b>		<b>Part A</b>	<b>Part B</b>
Color		Dark gray	White
Flow, Sag or Slump		Self-leveling	Self-leveling
Extrusion Rate	g/minute	200 to 550	200 to 550
Specific Gravity		1.26 to 1.34	1.26 to 1.34
Volatile Organic Compounds (VOC)	g/L	34	0

#### As Installed – At 25°C (77°F) and 50 percent Relative Humidity

Skin-Over Time at 25°C (77°F)	minutes	10 to 15 (20 max)
Tack-Free Time at 25°C (77°F)	minutes	30 to 60
Joint Elongation, minimum <sup>1</sup>	percent	600
Joint Modulus at 100 percent	psi (kPa)	3 to 12 (21 to 83)
Joint Movement Capability, <sup>2</sup> 10 cycles, ± 50 percent (joints 3 to 4" wide)		No failure
+100/-50 percent (joints 1 to 3" wide)		No failure

<sup>1</sup>Joint size = 1/2 inch x 1/2 inch x 2 inches (13 mm x 13 mm x 51 mm).

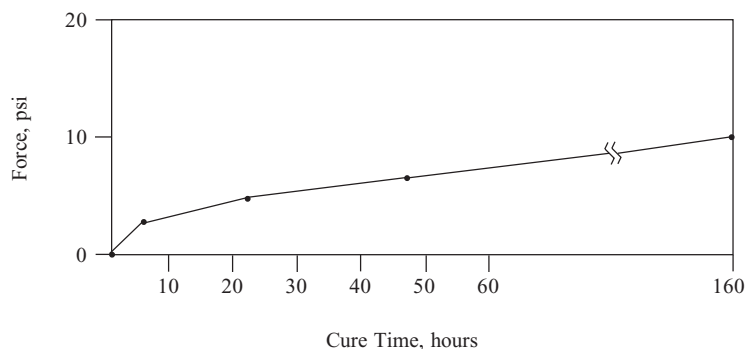
<sup>2</sup>Joint size = 2 inches wide x 1/2 inch thick x 2 inches long (51 mm x 13 mm x 51 mm).

### DESCRIPTION

*Dow Corning* 902 RCS (Rapid Cure Silicone) Joint Sealant is a self-leveling, cold-applied, rapid-cure, two-part, easy-to-install, ultra-low-modulus, 100 percent silicone rubber sealant designed to seal expansion joints that experience both thermal

and/or vertical movements due to traffic loading. *Dow Corning* 902 RCS Joint Sealant can be used for new and remedial applications. Its rapid cure is especially well suited for maintenance work, such as bridge joint resealing, where resealing must be completed within a short time period (i.e., less than 8 hours) to minimize traffic disruption.

**Figure 1. Cure Rate of Dow Corning 902 RCS Joint Sealant<sup>1</sup>**



<sup>(1)</sup> 1/2-inch (13 mm) wide joint modulus at 100 percent.

The ultra-low modulus of *Dow Corning* 902 RCS Joint Sealant allows it to accommodate the high degree of movement associated with expansion joints on bridges. Its rapid cure means it will cure fast enough to accommodate typical daily thermal movements and/or differential joint movement caused by traffic without being damaged (see Figure 1). In comparison, one-part sealants typically require 7 to 21 days to cure and often are prematurely damaged due to excessive movement prior to complete cure.

*Dow Corning* 902 RCS Joint Sealant is self-leveling, allowing it to conform to irregularly shaped joints. In many instances, this may eliminate the need for minor joint refacing, reducing repair time and cost.

## Benefits

- Rapid cure – Develops sufficient integrity within 8 hours to accommodate movements associated with bridges
- Easy to use – Self-leveling (no tooling), a two-part formulation with the ease of one-part installation; no pre-mixing or measuring required
- Convenient disposal pak – Available in *Dow Corning E-Z Pak™* sausages; easy to load, use and dispose, minimizing waste
- High movement capability – Once cured, the sealant will accommodate movements +100/-50 percent of joint size for joints 1 to 3 inches (25 to 76 mm) wide at the time of installation; the sealant accommodates up to ±50 percent of joint size for joints 3 to 4 inches (76 to 102 mm) wide at the time of installation
- Seals irregular surfaces – Self-leveling characteristics make the sealant ideal for sealing irregular joint surfaces by providing adequate contact to the substrate with no tooling
- Ultra-low modulus – Easily stretches in the joint with little stress on the bond line or joint wall, maximizing the probability of a successful seal with continuous or gradual joint movement
- Fully elastic – Recovers 90 percent or greater of its original dimension under repeated extension and/or compression without cracks or splits
- Good weatherability – The 100 percent silicone rubber is virtually unaffected by sunlight, rain, snow, ozone or temperature extremes; unlike organics, *Dow Corning* 902 RCS Joint Sealant will not stiffen in cold temperatures or soften in warm weather – it will not degrade or crack with sunlight
- Long-life reliability – Under normal conditions, cured sealant stays rubbery from -45 to 149°C (-50 to 300°F) without cracking, tearing or becoming brittle
- All-temperature gunnability – Consistency and self-leveling characteristics are relatively unchanged over normal installation temperature range
- Bonds to itself – Ideal for maintenance applications where only one traffic lane can be sealed at a time, but a continuous seal is required when the adjacent lanes are sealed
- Curbs – While self-leveling, can be installed in vertical curb joints when proper damming techniques are used

## HOW TO USE

### Joint Design

A thin bead of silicone sealant will accommodate more movement and result in less bond line stress than a thick bead. *Dow Corning* 902 RCS Joint Sealant should be installed no thinner than 3/8 inch (9 mm) and no thicker than 1/2 inch (13 mm). See Table I and Figure 2 for proper bead thickness, joint design and recommended movement ranges.

### Application Method

*Dow Corning* 902 RCS Joint Sealant comes in kits consisting of two 20-fl oz *E-Z Pak* sausages: Part A (black) and Part B (white). With a dual sausage pneumatic gun (such as Model 635-1 supplied by Albion Engineering Co., Inc.<sup>1</sup>), load Parts A and B into the designated sides so that the crimped end is approximately 1/2 inch (13 mm) above the end of the cylinder. To open the sausage pak (see Figure 3), cut off the exposed crimped end of Part B. Repeat this step for Part A. Quickly attach the rear housing and static mixer. The materials are then dispensed at a predetermined ratio of 1:1 by volume through the static mixer and into the joint. The extruded material must be gray in color.

Guidelines for the proper use of *Dow Corning* 902 RCS Joint Sealant include:

- The inlet air pressure to the gun should not exceed the gun manufacturer's recommendation.
- The recommended static mixer should have a minimum 1/2 inch (13 mm) inside diameter and sufficient mixing elements to give the desired color. An example of a typical static mixer that can be used is one that has a 12 inch (305 mm) long plastic shell by 1/2 inch (13 mm) inside diameter, with a minimum of 8 inches (203 mm) of mixing elements.
- Prior to attaching the static mixer to the gun, dispense a small amount of material (A and B) to ensure the gun is dispensing both parts.
- To continue using the same static mixer, do not allow elapsed time to

<sup>1</sup>Albion Engineering Co., Inc., 2080A Wheatshas Lane, Philadelphia, PA 19124, (215) 535-3476.

exceed 5 minutes when changing kits. The mixer should not remain inactive for longer than 5 minutes.

## Installation Procedures

When installing *Dow Corning* 902 RCS Joint Sealant it is critical that the joint be clean and dry prior to and during installation. *Dow Corning* 902 RCS Joint Sealant is primarily intended for Portland cement concrete surfaces or steel joint surfaces. If other substrate surfaces, such as polymer concrete and asphalt, are to be sealed, contact Dow Corning Technical Service and Development for recommendations.

The detailed recommended installation procedures found in Dow Corning's *Installation Guide for Silicone Pavement Sealants* (Form No. 61-507) and *Dow Corning® 902 RCS Joint Sealant Installation Guidelines* (Form No. 62-272) apply to this product. A brief outline of the installation procedures for *Dow Corning* 902 RCS Joint Sealant is included in "Remedial Applications."

## Primer Recommendations

When using primers, consult local and state laws for VOC compliance.

For concrete substrates, uniformly coat the entire surface with *Dow Corning®* P5200 Adhesion Promoter using a clean cloth or brush. Over-application may affect adhesion. Allow a minimum of 10 minutes for the primer to dry prior to sealant application.

For carbon steel substrates, after sandblasting to "white metal," apply PPG *MetalHide®* One-Pac Inorganic Zinc Rich Primer (97-676 Series), following the manufacturer's instructions and recommendations. Allow PPG *MetalHide* to thoroughly dry before installing backer rod and sealant. Because the heavy zinc powder tends to settle fairly quickly, frequent (every ten minutes) stirring of PPG *MetalHide* is recommended.

Contact Dow Corning Technical Service and Development for further recommendations on metal surfaces other than carbon steel.

**Table I. Movement Range and Usage Rate**

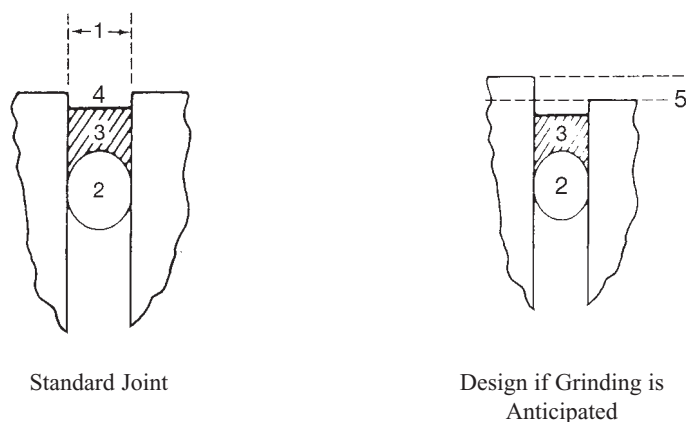
Joint Width <sup>1</sup> ,		Movement Rating, percent	Maximum Sealant Bead Thickness,		Linear Yield <sup>2</sup> , 40-oz Kit		Linear Yield <sup>3</sup> , 9-gal Kit	
inches	mm		inches	mm	ft	m	ft	m
1	25	+100/-50	1/2	13	9	2.74	260	79.3
1 1/4	32	+100/-50	1/2	13	7.5	2.29	210	64.0
1 1/2	38	+100/-50	1/2	13	6	1.83	160	48.8
1 3/4	44	+100/-50	1/2	13	5	1.52	135	41.1
2	51	+100/-50	1/2	13	4.5	1.37	120	36.6
2 1/4	57	+100/-50	1/2	13	4	1.22	110	33.5
2 1/2	63	+100/-50	1/2	13	3.5	1.07	100	30.5
2 3/4	70	+100/-50	1/2	13	3	0.91	75	22.9
3	76	+100/-50	1/2	13	2.5	0.76	60	18.3
3 1/4	83	±50	1/2	13	2.25	0.69	55	16.8
3 1/2	89	±50	1/2	13	2.1	0.64	50	15.2
3 3/4	95	±50	1/2	13	2	0.61	45	13.7
4	102	±50	1/2	13	1.5	0.46	40	12.2

<sup>1</sup>Joint width as measured at the time of installation.

<sup>2</sup>Yield based on one kit containing two 20-fl-oz *E-Z Pak* sausages. Yield will vary depending on joint design, tooling, backer, placement, waste and experience.

<sup>3</sup>Yield based on one kit containing two 4.5-gallon pails. Yield will vary depending on joint design, tooling, backer, placement, waste and experience.

**Figure 2. Recommended Joint Designs**



1. Joint width wide enough to accommodate movement.
2. Proper backer rod placement to prevent three-sided adhesion.
3. Sealant installed to proper depth and width.
4. Sealant recessed a minimum of 1/2 inch (13 mm) below pavement surface.
5. Depth of lowest slab determines the amount of recess required if grinding is anticipated; once grinding is complete, the sealant will have proper recess below the pavement surface.

## Backer Recommendations

For joints greater than 3 inches (76 mm) in width at the time of sealing, it may be difficult to obtain backer rod that will stay in place during sealant cure and not be so large that it tears or is punctured during backer installation. Two options for this condition are:

1. Use of a soft, open-cell rod with an impervious skin that will readily compress to smaller joint widths without damage.
2. Increase the size of a standard backer rod by splicing it open and inserting a smaller diameter rod – a practice known as “hot-dogging” (see Figure 4).

## Remedial Applications

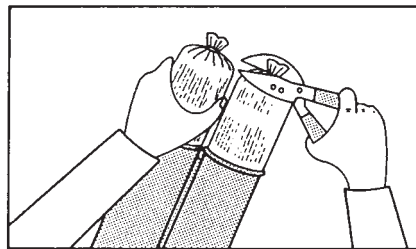
1. Completely remove existing joint materials from the joint. The technique selected will depend on the material currently in the joint.
2. Clean the joint faces to remove residual contaminants. If wet sawing is used, immediately water wash to remove sawing residue, and sandblast after the concrete has dried. Sawing must be deep enough to accommodate proper sealant depth, backer rod and proper sealant recess. For steel, sandblast to a “near white” (SSPC-SP 10 of the *Steel Structures Painting* manual). Perform sandblasting in two passes – one pass per joint face. Sandblasting should comply with federal and local state laws. Proper protective equipment must be worn.
3. Blow out dust, loose particles and other debris from the joints in only one direction with oil- and water-free compressed air.<sup>2</sup> Surfaces must be clean, dry, frost-free and dust-free and can be checked by running a finger along the joint face. If a white, chalky dust appears on the finger, the joint must be recleaned.
4. Apply recommended primer.
5. Install a backer rod that is a minimum 25 percent oversized into the joint approximately 1 inch (13 mm) below the surface. The backer rod should be continuous. If two pieces must be joined, abut the two ends

and tape them together to prevent sealant “run down.”

6. Install the sealant in a manner so that the bead thickness is  $\frac{3}{8}$  inch (9 mm) minimum and  $\frac{1}{2}$  inch (13 mm) maximum and the sealant is recessed a minimum  $\frac{1}{2}$  inch (13 mm) below the surface to prevent traffic abrasion (see Tables II and III). To maximize joint wall wetting, install *Dow Corning 902 RCS Joint Sealant* using a multi-pass technique with the initial passes along each joint wall. All passes should be made in the same direction to minimize air entrapment.
7. When the vertical curb joints are to be sealed, the sealant should also be recessed to prevent damage, especially on bridge joints where snow plows are used.

The bottom and outer joint edges must be dammed to prevent sealant from “running out” of the joint. The lower end of the vertical joint can be dammed by using a non-sag sealant, such as *Dow Corning® 888 Silicone Joint Sealant*. For the vertical section, damming materials should be positioned so that the installed sealant is sandwiched between the backer rod and the outer damming material. The outer damming material may be another piece of backer rod positioned and held in place with masking tape. Fill the cavity from the bottom up. Allow the sealant to cure prior to removal of outer damming material.

**Figure 3: How to Load the E-Z Pak Sausage**



*Cut off and remove the metal-clipped end of E-Z Pak sausage.*

NOTE: If vertical curbs are to be sealed, these should be sealed first. This will allow sufficient time for the sealant to cure so that damming materials can be removed prior to leaving the job site.

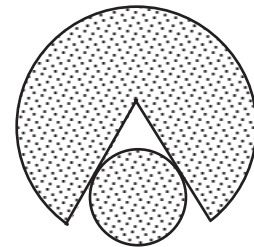
## HANDLING PRECAUTIONS

The product contains a proprietary acetamidosilane that liberates N-methyl acetamide (N-MA) during cure. N-MA may cause birth defects based on animal data. Toxicology studies indicate that repeated, prolonged overexposure to N-MA causes an adverse reproductive effect in laboratory animals. Avoid breathing vapors. Do not use in poorly ventilated spaces. Avoid prolonged skin contact. **KEEP OUT OF REACH OF CHILDREN.**

Fully cured sealant is nonhazardous.

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND MATERIAL SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE MATERIAL SAFETY DATA SHEET IS AVAILABLE ON THE DOW CORNING WEBSITE AT [WWW.DOWCORNING.COM](http://WWW.DOWCORNING.COM), OR FROM YOUR DOW CORNING REPRESENTATIVE, OR DISTRIBUTOR, OR BY CALLING YOUR GLOBAL DOW CORNING CONNECTION.

**Figure 4. Enlarging Backer Rod by “Hot-Dogging”**



<sup>2</sup>OSHA Regulation. General Rules, Part 1, R-408.10036 Paragraph 1.

**Table II: Recommended Backer Rod Installation (Standard Joint)**

Joint Width, inches (mm)	1	1½	2	2½	3
Recess Below Surface, inches, minimum	½	½	½	½	½
Sealant Thickness, inches, maximum	½	½	½	½	½
Backer Rod Outside Diameter, inches	1¼	2	2¼	3	3½
Total Depth, inches, minimum	2¼	3	3¼	4	4½

**Table III: Recommended Backer Rod Installation (Standard Joint) – Metric Equivalents**

Joint Width, mm	25	38	51	63	76
Recess Below Surface, mm, minimum	13	13	13	13	13
Sealant Thickness, mm, maximum	13	13	13	13	13
Backer Rod Outside Diameter, mm	31	51	57	76	89
Total Depth, mm, minimum	57	76	83	101	114

## USABLE LIFE AND STORAGE

When stored in original, unopened containers between 0 and 32°C (32 and 90°F), *Dow Corning* 902 RCS Joint Sealant has a shelf life of 12 months from date of manufacture. Refer to product packaging for “Use By” date.

Keep containers tightly closed.

## PACKAGING

*Dow Corning* 902 RCS Joint Sealant is supplied in kits consisting of two 20-fl oz (592-mL) *E-Z Pak* sausages. It is also available in kits consisting of two 4.5-gal (17-L) bulk plastic pails upon request.

## LIMITATIONS

*Dow Corning* 902 RCS Joint Sealant is not recommended for continuous water immersion. The sealant should not be installed under totally confined conditions.

*Dow Corning* 902 RCS Joint Sealant must be recessed below the pavement surface to prevent traffic abrasion or snow plow damage. It must not be installed in joints that cause the sealant to come in contact with traffic or exceed its stated capability. For joints

expected to be used in pedestrian areas and parking structures, proper engineering practices must be followed.

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

## Shipping Limitations

None.

## 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.

## LIMITED WARRANTY INFORMATION – PLEASE READ CAREFULLY

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our

products are beyond our control, this information should not be used in substitution for customer’s tests to ensure that Dow Corning’s products are safe, effective, and fully satisfactory for the intended end use. Suggestions of use shall not be taken as inducements to infringe any patent.

Dow Corning’s sole warranty is that the product will meet the Dow Corning sales specifications in effect at the time of shipment.

Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted.

**DOW CORNING SPECIFICALLY DISCLAIMS ANY OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY.**

**DOW CORNING DISCLAIMS LIABILITY FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.**



