

SILASTIC® 9161 RTV Silicone Elastomer

FEATURES

- Room temperature cure
- Usable at temperatures from -50°C to +250°C
- Excellent dielectric properties
- Highly resistant to moisture, oxidation and weathering
- Easy to pour
- Flexible pot life depending on catalyst concentration

Low viscosity silicone elastomer

APPLICATION

- Applications include encapsulation of electronic components, potting of electromagnets and coating of electronic circuits.

TYPICAL PROPERTIES

Specification writers: These values are not intended for use in preparing specifications. Please contact your local Dow Corning sales representative prior to writing specifications on this product.

CTM*	ASTM*	Parameter	Unit	Value
As supplied - base				
0176		Colour		Off white
0050	D455	Viscosity at 25°C	mPa.s	13,000
0097	D792	Relative density at 25°C		1.60
As supplied - N9162 catalyst				
0176		Colour		Light yellow
0022	D792	Relative density at 25°C		1.01
Mixing ratio by weight				
Physical properties, cured with 2% N9162 Catalyst for 24 hours at 20°C				
0099	D676	Durometer hardness	Shore A	39
0137A	D412	Tensile strength	MPa	2.75
0137A	D412	Elongation	%	250
0159A		Tear strength	kN/m	2.2
		Linear shrinkage, 24 hours at 70°C	%	1.0
		Thermal conductivity	W/(m.K)	0.25
Electrical properties, cured with 2% N9162 Catalyst for 24 hours at 20°C				
0114	D149	Dielectric strength	kV/mm	21.5
0112	D150	Permittivity at 1MHz		4.01
0112	D150	Dissipation factor at 1MHz		0.0072
0249	D257	Volume resistivity	ohm.cm	3.0 x 10 ¹²

* CTM: Corporate Test Method, copies of CTMs are available on request.

ASTM: American Society for Testing and Materials.

HOW TO USE

Substrate preparation

For best adhesion, clean and degrease application surfaces using solvents (see Handling Precautions). Remove all solvent and ensure all surfaces are dry before applying the product.

For optimum adhesion, coat surfaces with DOW CORNING® 1200 Primer (see Handling Precautions).

Mixing

The pot life of the catalysed material depends on the concentration of DOW CORNING® N9162 Catalyst

and the temperature. The catalyst (see Handling Precautions) should be measured by weighing and can be effectively dispersed by simple hand or mechanical stirring. A clean paper cup, metal, glass or plastic container can be used for the mixing operation. Catalysed SILASTIC 9161 RTV will normally de-air itself on standing. However, for encapsulating intricate components, vacuum degassing is recommended and a residual pressure of 10mm to 20mm of mercury will sufficiently de-air the material in 10 minutes.

Typical pot life at 25°C

% by weight of DOW CORNING N9162 Catalyst added to SILASTIC 9161 RTV

	Pot life ¹ (minutes)
1.0	35
1.5	25
2.0	12
3.0	7
4.0	3

¹ Pot life is the time taken for the catalysed material to double its initial viscosity

How to apply

Being careful to minimise air entrapment, apply the encapsulant. Vacuum encapsulation is recommended for complex geometries.

For information on appropriate dispensing equipment for your application, please contact Dow Corning.

Heat ageing

SILASTIC 9161 RTV exhibits excellent heat ageing characteristics at temperatures up to 250°C. In totally confined conditions, SILASTIC 9161 RTV may depolymerise at elevated temperatures. To minimise this effect, components which must operate in total confinement at elevated temperatures should be given a step wise post cure of approximately 25°C per hour in an open container. A final cure of 4 hours at 25°C above the maximum operating temperature of the device is recommended.

SILASTIC 9161 RTV shows less depolymerisation or reversion than most other condensation curing two component RTV's, even without a

step wise cure. No problems are experienced with normal open air heat ageing. The effect of heat ageing on SILASTIC 9161 RTV at various temperatures is shown in Table I.

Addition of DOW CORNING®

200/20mm²/s Silicone Fluid

It is possible to add up to 20 parts by weight of DOW CORNING 200/20mm²/s Dimethyl Silicone Fluid to SILASTIC 9161 RTV to obtain the following effects:

- reduced hardness
- lower mixed viscosity
- increased pot life

The physical strength of SILASTIC 9161 RTV is reduced, but this is often acceptable in potting applications where protection is given by the outer casing.

Reducing the setting time

It is sometimes required that the elastomer should be in a handleable condition as soon as possible after using. In such cases, the setting time* can be reduced by heat curing the catalysed elastomer. A maximum temperature of 80°C is recommended since there is no significant advantage to be gained by going above this point and there is a risk of bubbling. Figure 1 shows the typical effect of temperature on the setting time of SILASTIC 9161 RTV.

* Setting time is the time required for SILASTIC 9161 RTV to reach a rubber like state when it can be handled.

HANDLING PRECAUTIONS

DOW CORNING N9162 Catalyst is flammable and contact with sources of ignition should be avoided. Skin and eye contact should also be avoided. Splashes should be washed first with alcohol and then soap and water.

DOW CORNING 1200 Primer is flammable. Keep away from heat, sparks and open flames. Use only with adequate ventilation. Avoid

prolonged breathing of vapours and prolonged or repeated skin contact.

When using solvents avoid heat, sparks and open flame. Always provide adequate ventilation. Obtain and follow handling precautions from the solvent supplier.

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE FROM YOUR LOCAL DOW CORNING SALES REPRESENTATIVE.

USABLE LIFE AND STORAGE

When stored at or below 32°C in the original unopened containers, this product has a usable life of 12 months from the date of production.

DOW CORNING N9162 Catalyst is very easily hydrolysed by atmospheric moisture and it is essential that it should be kept out of contact with water and water vapour. It is, therefore, important that the lid of the catalyst container is replaced immediately after use. If DOW CORNING N9162 Catalyst is stored at 8°C or below, it may haze or solidify. In this event it should be warmed gently to 20°C until all the material liquifies. DOW CORNING N9162 Catalyst should not be used in the non homogeneous state.

PACKAGING

This product is available in 0.5kg, 5kg and 20kg containers, net weight.

DOW CORNING N9162 Catalyst is available in 0.5kg and 5kg containers.

LIMITATIONS

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

HEALTH AND ENVIRONMENTAL INFORMATION

To support customers in their product safety needs, Dow Corning has an extensive Product Stewardship organization and a team of Health, Environment and Regulatory Affairs specialists available in each area.

For further information, please consult your local Dow Corning representative.

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. 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. Unless Dow Corning provides you with a specific, duly signed endorsement of fitness for use, Dow Corning disclaims liability for any incidental or consequential damages. Suggestions of use shall not be taken as inducements to infringe any patent.

Table I: Typical physical properties after heat ageing at 150°C and 250°C

	<i>Ageing period after 24 hour cure Days</i>	<i>Tensile strength MPa</i>	<i>Elongation at break %</i>	<i>Hardness, Shore A</i>
SILASTIC 9161 RTV, 150°C	0	2.75	150	40
	7	2.75	150	37
	21	3.05	150	38
SILASTIC 9161 RTV, 250°C	0	2.75	150	40
	7	1.38	150	30
	21	0.59	120	30

Table II: Typical electrical properties after heat ageing at 250°C

	<i>Unaged</i>	<i>3 months at 250°C after 24 hour cure</i>
Mean thickness, mm	1.350	1.475
Dielectric strength, kV/mm	21.5	23.0
Permittivity at 1 MHz	4.01	4.24
Dissipation factor at 1 MHz	0.0072	0.0032
Volume resistivity, Ohm.cm	3.4×10^{13}	1.7×10^{13}