Product Information

DOW CORNING

SYLGARD® 170 Silicone Elastomer

FEATURES

- Two-part, 1:1 mixing ratio
- Medium viscosity
- Room temperature cure or rapid heat cure
- Addition cure system: no cure by-products
- Flame retardant: meets Underwriters Laboratories UL 94-VO
- Stable and flexible from -50°C (-58°F) to +200°C (392°F)
- Flexible rubber - protects against mechanical shock and thermal cycling stress at components
- Excellent dielectric properties

Flame retardant UL 94-VO elastomer

APPLICATIONS

- Designed to protect against moisture, environmental attack, mechanical and thermal shock as well as vibration especially where good adhesion is required.
- Typical applications include: encapsulation of amplifiers, automotive electronic units, ballast, bleed resistors, connectors, flyback transformers, high voltage resistor packs, lifting magnets, power controllers, power supplies, radio frequency induction transformers and sensing devices.

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*	Property	Unit	Value
		As supplied		
0176		Colour (Part A/Part B)		Black/Beige
0050	D1084	Viscosity at 23°C (Part A/Part B)[1]	mPa.s	4,000/1,500
0022	D792	Specific gravity at 23°C (Part A/Part B)		1.35/1.35
		Catalysed, Mixed 1:1 by weight		
		Colour		Grey - black
0050	D1084	Viscosity at 23°C, after 2 minutes[1]	mPa.s	3,000
0050	D1084	Viscosity at 23°C, after 30 minutes[1]	mPa.s	11,000
		Cure time at 150°C, 100°C, 70°C, 23°C	hours	7, 11, 30, 24
		Physical properties, cured 30 minutes at 70°C		
		Colour		Grey - black
0022	D0792	Specific gravity at 23°C		1.35
0099	D2240	Durometer hardness, Shore A		41
0137A	D412	Tensile strength	MPa	2.4
0137A	D412	Elongation at break	%	150
0159A	D624	Tear strength - die B	kN/m	3.5
0224	D2214	Thermal conductivity	W/(m.K)	0.36
0653		Volume coefficient of thermal expansion	1/K	8.1x10[a¤]
		Electrical properties, cured 30 minutes at 70°C		
0114	D149	Dielectric strength, 2mm thickness	kV/mm	18
0112	D150	Permittivity at 100Hz/100kHz		3.15/3.2
0112	D150	Dissipation factor at 100Hz/100kHz		0.002/0.007
0249	D257	Volume resistivity	Ohm.cm	1.8x10[¥]
		Comparative tracking index (IEC112)		600

1. Brookfield HAF, #2 spindle at 5rpm.

* CTM: Corporate Test Method, copies of CTMs are available on request.
ASTM: American Society for Testing and Materials.

HOW TO USE

Substrate preparation

All surfaces should be cleaned and degreased with a suitable solvent prior to potting. Care should be taken to ensure that all solvent is removed.

For best adhesion, coat surfaces with DOW CORNING® 92-023 Primer or DOW CORNING® 1200 OS Primer, following the instructions and precautions given for use of these products.

Mixing

SYLGARD 170 Silicone Elastomer is supplied in lot matched kits consisting of Part A and Part B in separate containers. During long periods of storage, some of the filler may settle at the bottom of the containers and should be individually homogenised prior to use.

The two components should be thoroughly mixed using a weight or volume ratio of 1:1 until the mixture has a uniform colour.

Vacuum de-airing is recommended. A residual pressure of 10-20mm mercury applied for 5-10 minutes will sufficiently de-air the material.

Pot life

The catalysed viscosity of SYLGARD 170 Silicone Elastomer after 2 minutes at 23°C is 3,000mPa.s. This rises to about 11,000mPa.s after 30 minutes at 23°C.

How to apply

Being careful to avoid 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.

Curing

SYLGARD 170 Silicone Elastomer should be cured using one of the following recommended schedules:

24 hours at 23°C, or
30 minutes at 70°C, or
11 minutes at 100°C, or
7 minutes at 150°C.

Large components and assemblies may require longer times in order to reach the curing temperature.

Compatibility

In some cases, SYLGARD 170 Silicone Elastomer may fail to cure to optimum properties when in contact with certain plastics or rubbers. Cleaning the substrate with solvent or baking slightly above the cure temperature will normally eliminate the problem.

Certain chemicals, curing agents and plasticisers can inhibit cure. These include:

- Organo-tin compounds
- Silicone rubber containing organo-tin catalysts
- Sulphur, polysulphides, polysulphones and other sulphur containing materials
- Amines, urethanes, amides and azides.

Flame retardancy (UL 94 - V0)

Typical vertical flame test results are:

Time in flame	Time to self-extinguish
5 seconds	0 seconds
10 seconds	1 second
15 seconds	3 seconds

Repairability

As SYLGARD 170 Silicone Elastomer cures to a flexible rubber, it can easily be repaired if required. To re-pot a repaired unit it is not necessary to cut away highly irregular areas adjacent to the area to be repaired. It is sufficient simply to abrade them. The more irregular the area is, the stronger the bond will be.

HANDLING PRECAUTIONS

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 35°C in the original unopened containers, this product has a usable life of 24 months from the date of production.

PACKAGING

SYLGARD 170 Silicone Elastomer is available in standard industrial container sizes. For details please refer to your Dow Corning sales office.

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.