

SYLGARD® 186 Silicone Elastomer

FEATURES

- Two-part, 10:1 mixing ratio
- Room temperature cure or rapid heat cure
- Addition cure system: no cure by-products
- High tear strength
- Stable and flexible from -50°C to +200°C
- Translucent
- Flexible rubber - protects against mechanical shock and thermal cycling stress at components
- Excellent dielectric properties

High tear strength silicone elastomer

APPLICATIONS

- Designed to protect against moisture, environmental attack, mechanical and thermal shock as well as vibration especially when a high tear strength product is needed.
- Typical applications include: potting of cable harness breakouts, connectors, high voltage terminals and optical fibre cladding.

TYPICAL PROPERTIES

Specifications 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 - Base/Curing Agent		Translucent/ Clear
0050	D1084	Viscosity (Base) ¹	mPa.s	120,000
0050	D1084	Viscosity (catalysed), 0 hours ¹	mPa.s	65,000
0050	D1084	Viscosity (catalysed), 2 hours ¹	mPa.s	110,000
Physical properties, cured 1 hour at 150°C				
0022	D0792	Specific gravity at 23°C		1.12
0099	D2240	Durometer hardness, Shore A		25
0137A	D412	Tensile strength	MPa	4.8
0137A	D412	Elongation at break	%	420
0159A		Tear strength - die B	kN/m	15
		Coefficient of thermal conductivity	W/(m.K)	0.22
		Volume coefficient of thermal expansion	1/K	9.0x10 ⁻⁴
Electrical properties, cured 1 hour at 150°C				
0114	D149	Dielectric strength	kV/mm	13
0112	D150	Permittivity at 100Hz/100kHz		3.0/3.01
0112	D150	Dissipation factor at 100Hz/100kHz		0.0009/0.001
0249	D257	Volume resistivity	Ohm.cm	0.8x10 ¹⁵

1. Brookfield HAF, spindle #6 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 186 Silicone Elastomer is

supplied in lot matched kits consisting of base and curing agent in separate containers.

The two components should be thoroughly mixed using a weight or volume ratio of 10:1.

The pot life is 2 hours for catalysed SYLGARD 186 Silicone Elastomer at room temperature.

Lowering the viscosity

The viscosity of SYLGARD 186 Silicone Elastomer may be reduced by addition of up to 10% of DOW CORNING® 200 Fluid 50 cS. This is a non-reactive diluent and bleeding may result if more than 10% fluid is added. The addition of the silicone fluid tends to lower the physical strength and hardness while increasing the elongation.

SYLGARD® 184 Silicone Elastomer may also be used to lower the viscosity of SYLGARD 186 Silicone Elastomer. This method has the advantage that the diluent reacts chemically with the SYLGARD 186 Silicone Elastomer and no bleeding of the diluent will occur at any concentration. The resulting cured material will have physical properties intermediate between those of SYLGARD 184 Silicone Elastomer and SYLGARD 186 Silicone Elastomer. The cure rate of SYLGARD 186 Silicone Elastomer is not significantly affected by the addition of either diluent.

Vacuum de-airing is recommended. A residual pressure of 10-20mm mercury applied for 30 minutes will sufficiently de-air the material.

How to apply

Apply the encapsulant, being careful to avoid air entrapment. Vacuum encapsulation is recommended for complex geometries.

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

Curing

SYLGARD 186 Silicone Elastomer should be cured using one of the following recommended schedules:

4 hours at 65°C, or
1 hour at 100°C, or
15 minutes at 150°C

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

At 23°C the material will have cured sufficiently in 24 hours to be handled; however full mechanical and electrical properties will only be achieved after 3 days.

Compatibility

In some cases, SYLGARD 186 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.

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

PACKAGING

SYLGARD 186 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.

LIMITED WARRANTY - PLEASE READ CAREFULLY

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