SILTECH CORPORATION
225 Wicksteed Avenue
Toronto, Ontario, Canada, M4H 1G5
(416)424-4567 (Tel) (416)424-3158 (Fax)

TECHNICAL DATA SHEET

Silmer® G-100 series

Two Part Addition Cured Silicone Resins

Description

The Silmer G-100 products are a series of two-part, optically clear, addition cured silicone gel systems which range from soft, tacky gels to hard rubbers. The good chemical resistance, electrical resistance, elongation and large range of temperature utility coupled with the various mechanical properties make these products especially useful in dental impressions, electronic encapsulants and dampeners, photonic, aerospace, under the hood and pressure sensitive adhesives applications.

Typical Properties Uncured

Property		Silmer G-100	Silmer G-101	Silmer G-102	Silmer G-103	Silmer G-104	Silmer G-105	Silmer G-106	Siltech CR4-137	Siltech TC12-108G
Appearance		Clear Liquid	Clear Liquid	Clear Liquid	Clear Liquid	Clear Liquid	Clear Liquid	Clear Liquid	Clear Liquid	Clear Liquid
Viscosity (cPs)	Part A	2075	405	384	927	927	395	8079	6953	12600
	Part B	1295	266	307	415	415	287	7496	30	12600
Work Time (Estimated)		15 min	15 min	15 min	15 min	15 min	15 min	15 min	2 hours	4 hours
Set Up Time		60-120 min	60-120 min	60-120 min	60-120 min	60-120 min	60-120 min	60-120 min	6 hours	8 hours

Typical Properties After Curing @100°C, for 1 Hour

Property	Silmer G-100	Silmer G-101	Silmer G-102	Silmer G-103	Silmer G-104	Silmer G-105	Silmer G-106	Siltech CR4-137	Siltech TC12-108J
Gel Appearance	Soft Gel	Firm Gel	Softer Gel	Soft Dough	Harder Dough	Hard Gel	Tough Rubber	Tough Rubber	Soft Rubber
Shore A	0	0	0	0	0	9	11	60	<1
Penetration	>15	3	>15	3	2	<1	<1	<1	N/A
Shear Modulus (Pa)	3.7E3	8.7E3	46	23	1.1E3	1.5E5	1.8E5	1.2E6	N/D
Tan δ after cured	0.73	0.014	1.23	14.3	1.73	0.068	0.035	0.020	N/D
Transition Peak (tan δ/temp °C)	85/ 76.3	21/ 90.8	39/ 77.1	68/ 61.3	53/ 58.0	34/ 75.8	111/ 27.5	80/ 52.5	N/D
Tensile at Break (KPa)	68	25.5	9.4*	23.5*	33.38	220	368	4289	1366
Elongation at Break (%)	617	315	>700*	>700*	>1700	154	274	93	924
Tack (gm)	220	440	175	430	380	Nil	Nil	Nil	Nil
Pull back (rebound)	Yes	Yes	Yes	No	No	No	No	No	No
Operating Temperature	-100°C to 250°C								
Dielectric Constant	2.8 (100-100KHz)								
Dissipation factor	0.002/ 0.0001 (100/100KHz)								
Volume Resistivity	$1x10^{15}$ Ohm-cm								
Dielectric Strength	>400 V/mil								

* Too soft to be measured with Instron (Estimated with ChemInstruments' tester)

Application & Uses

Silmer® G-100 resins can provide protection of electric and electronic components and assemblies against moisture, dust, chemicals and other environmental exposures. It can also be used as:

a) Potting compound to keep dirt and corrosion out of critical areas.
b) Sealant or encapsulant where periodic reentry for inspections or repair is required.
c) Reinforcing gel to minimize fatigue on conductors due to vibration.
d) Conformal cushion to protect sensitive components from corrosion and vibration.
e) Gasket in low pressure applications for sealing.
f) Insulator on low and medium voltage applications.

Silmer G-100 resins can be used as elastomers or adhesives in medical devices, where permitted including dental impressions. They can also be used in photonics for cladding, interconnects, lenses and optical coatings or in aeronautics for adhesives or for vibration, acoustic and thermal interfaces.

The formulation flexibility of these products allows for a range of mechanical properties such as Hardness, Penetration, Shear Modulus, Elongation, Tack and Rebound, while maintaining the inherent properties of silicone such as temperature flexibility, mechanical elasticity and chemical and electrical resistance.

Mixing Instructions

The Silmer G-100 series are provided as a two part system. Part A and Part B are mixed in a specific ratio (usually 1:1 by weight). Inaccurate proportioning or inadequate mixing may cause localized problems affecting cured properties.

Cure Considerations

A wide range of cure times, working time and temperatures are available. Cure inhibition can be minimized by using clean containers and dispensers. All substrates and dispensers must be free of contaminants. A primer might be required for some substrates.

Shelf Life

When stored at or below 25°C, Silmer G-100 products have a shelf life of 24 months from the date of manufacture.

Packaging

Silmer G-100 products are supplied in 20kg pails and 190kg drums.

Legal Disclaimer