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TECHNICAL BULLETIN

Silmer® G-200 series

Description

A series of two-part, optically clear, flexible silicone modified epoxy resin systems with good chemical resistance, electrical resistance, a large range of temperature usage and various mechanical properties.

Typical Properties Uncured

Property	Silmer G-218	Silmer G-219	Silmer G-220	Silmer G-221	Silmer G-222	Silmer G-223
Appearance	Clear Liquid	Clear Liquid	Clear Liquid	Clear Liquid	Clear Liquid	Clear Liquid
Viscosity (cps)	2150	1750	1500	1200	1000	750
Cure Temperature (°C)	110-130	110-130	110-130	110-130	110-130	110-130
Cure Time (Hrs)	2-4	2-4	2-4	2-4	2-4	2-4
Mixing Ratio (PartA:PartB)	3.3	3.5	3.7	4.1	4.4	4.8

Typical Properties After Curing @110°C for overnight

Property	Silmer G-218	Silmer G-219	Silmer G-220	Silmer G-221	Silmer G-222	Silmer G-223
Appearance	Clear Solid	Clear Solid	Clear Solid	Clear Solid	Clear Solid	Clear Solid
Shore D	73	59	48	40	20	11
Storage Modulus (kPa)	1600	1400	1200	1100	1000	800
Loss Modulus (kPa)	33	26	21	16	18	15
Tan Delta	0.021	0.020	0.019	0.016	0.020	0.021
Tensile at Break (MPa)	19.9	16.5	12.0	6.5	3.3	2.0
Elongation at Break (%)	60.25	86.23	111.4	119.3	120.3	113.9
Flexibility*	Moderate	Moderate	Moderate to High	Moderate to High	High	High

* Cured epoxy resin without silicone modifier has very low flexibility.

Application & Uses

Silmer G-200 Series are silicone modified epoxy resin systems utilizing an anhydride as hardener. In general, epoxy resins have been widely used in adhesives, coatings, encapsulants, potting compounds, binders, etc. Combining epoxy resin with carbon/glass fibre can produce complex composite structures for use in wind turbine blades, recreational boat decks, racing car body components, etc. Epoxy resins modified with silicone provide the following advantages for the aforementioned applications:

1. Flexibility ï Depending on the amount of silicone material used in the epoxy resin system, desirable flexibility and toughness can be easily achieved.

2. Clarity ï The Silmer G-200 resins are totally compatible with the epoxy resins. Depending on application, up to 50% of the silicone resin can be incorporated in the epoxy resin and the cured thermoset still remains clear.

3. Thermal and UV stability ï Silicone resins usually give better heat stability, improved weatherability and less discoloration than the epoxy resin itself and some other organic substances.

4. Flammability ï Silicone resins can act as a flame retardant to some extent because of its lower tendency to generate smoke and harmful particles.

Mixing Instructions

Mix Part A and Part B in a specified ratio by weight as indicated in the TDS. 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^{o}C, Silmer G products have a shelf life of 12 months from the date of shipment.

Packaging

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

Legal Disclaimer

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