ELANTAS

Technical Data Sheet

MC 62 RESIN
W 363 NF HARDENER

2-component flame retardant room temperature curing epoxy system
Bisphenol A free. Listed system UL 94 V-0

ELANTAS Malaysia Sdn. Bhd.

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Product Description

MC 62 Resin and W 363 NF Hardener is a two component filled epoxy system, fluid. Self-extinguishing. The system is free from Bisphenol A, halogens and solvents.

Features of the system

- Good electrical and mechanical properties.
- Low shrinkage
- Good heat dissipation
- Low exothermic peak.
- RoHS compliant (European directive 2002/95/EC) and the new RoHS Directive 2011/65/EU (RoHS 2)
- Maintains excellent electrical and physical properties to at least 180°C

Areas of Application

The preferred applications for this series are via the encapsulation of:

- Transformers
- Igniters
- Submersible pumps
- Elnoise filters

Processing

In pre-filled products it is good practice to check and carefully rehomogenize the material if some settling is present. Add the appropriate quantity of hardener to the resin, mix carefully.

Avoid air trapping. For some applications it can be useful to pre-heat the components and/or carry out a de-aeration step under vacuum of the mixture before casting.

For a room temperature curing system postcuring allows fast stabilization of the material and obtainment of the best electrical and mechanical properties. During the curing process it is advisable to avoid thermal variations higher than 10°C/ hour.

Health & Safety

Refer to Elantas Malaysia Material Safety Data Sheet (SDS) for MC 62 Resin and W 363 NF Hardener.

Shelf life

Filled epoxy resins and relative hardeners can be stored for one year and two years respectively, in the original sealed containers, stored in a cool, dry place. After that period or if the material has been stored in anomalous conditions, pre-filled resins can be settled down and their use is possible, only if they are accurately re-homogenized with the help, if necessary, of a mechanical mixer. The hardeners are moisture sensitive therefore it is good practice to close the vessel immediatelya after each use. Long storage may cause filler settling mix the components before use.

Properties of component as supplied

Property	Conditions	MC 62 Resin	W 363 NF Hardener	Units
Density	ASTM D1475 @ 25 °C	1.68 - 1.72	0.97 - 1.01	g/ml
Viscosity	ISO3219 @25 °C	9000 - 13,000	10 - 30	cPs

Typical Cured System Properties

Property	Conditions	Value	Units
Mixing ratio	100 g resin 100 ml resin	100:13 100:23	g ml
Resin Color		Various colors	
Hardener Color		Various colors	
Initial mixture viscosity	ISO3219 @25 °C ISO3219 @40 °C	1400 - 2200 800 - 1100	cPs cPs
Pot life	@25 °C; 50mm; 200 ml	25 - 35	Min
Pot life (double initial viscosity)	ISO3219 @25°C ISO3219 @40 °C	20 - 30 12 - 22	Min Min
Exothermic peak	@ 25°C; 50mm; 200 ml	90 - 110	°C
Gelation time	@25 °C; 15 ml; 6 mm	2.5 - 3.5	Hours
Demoulding time	@25 °C; 15 ml; 6 mm	8 - 10	hours
Post-curing	@60 °C	15	hours

Typical Cured System Properties (24 hr TA + 15 hr 60°C)

PROPERTIES	Conditions	Value	Unit
Density	ASTM D792 @25 °C	1.61 - 1.63	g/ml
Hardness	ASTM D2240 @25 °C	85 - 90	Shore D/15
Glass Transition temperature (Tg)	ASTM D3418	54 - 60	°C
Water absorption	ASTM D570; 24h RT ASTM D570; 2h100°C	0.4 - 0.6 0.9 - 1.1	% %
Linear Thermal expansion (Tg)	ASTM E831; @ (-)10 °C ASTM E831; @ (+)10 °C	35 - 45 120 - 130	10^{-6}/ °C 10^{-6}/ °C
Thermal shock	10 cycles passed	(-) 55 - 180	°C
Flammability	UL 94 V-0	4	mm
Max recommended operating temperature	IEC 60085	155	°C
Thermal conductivity	ASTM C518	0.85 - 0.95	W/m°K
Dielectric constant	ASTM D150 @25 °C	3.7 –4.1	
Loss factor	ASTM D150 @25 °C	20 - 30	X 10^{-3}

Typical Cured System Properties (24 hr TA + 15 hr 60°C)

PROPERTIES	Conditions	Value	Unit
Volume resistivity	ASTM D257 @25 °C	2 - 10	x 10^{14} ohm-cm
Dielectric strength	ASTM D149 @25 °C	22 - 24	kV/mm
Flexural strength	ASTM D790	69 - 77	MN/m^2
Maximum strain	ASTM D790	1.0 - 1.6	%
Flexural elastic modulus	ASTM D790	6900 - 7600	MN/m^2
Tensile strength	ASTM D638	56 - 63	MN/m^2
Elongation at break	ASTM D638	1.2 - 2.2	%