

Technical Data Sheet

MC 62 BK RESIN

W 363 HARDENER

2-component flame retardant room temperature curing epoxy system

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(1011068-A)

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Product Description

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

Features of the system

- Good electrical and mechanical properties.
- Low shrinkage
- Good heat dissipation
- Suitable for immersion in sea water.
- RoHS compliant (European directive 2002/95/EC).
- fulfills the requirements of UNI-CEI 11170-3 “Protection towards fire of rail-tramvehicles”.

Areas of Application

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

- Transformers
- Igniters
- Submersible pumps
- Noise 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 BK Resin and W 363 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 immediately after each use. Long storage may cause filler settling mix the components before use.

Properties of component as supplied

Property	Conditions	MC 62 BK Resin	W 363 Hardener	Units
Density	ASTM D1475 @25°C	1.68-1.72	0.97-1.01	g/ml
Viscosity Brookfield	EN 13702-2 @25°C	9000-13,000	10-30	cPs
Sunshine Gel time	UNI 8701 @25°C; 100 ml	-	52-62	min

Properties of system

Property	Conditions	Value	Units
Mixing ratio	100 g resin 100 ml resin	100:13 100:23	G MI
Resin Color		Black	
Hardener Color		Clear	
Initial mixture viscosity	EN 13702-2 @25°C EN 13702-2 @40°C	1400-2200 800-1100	cPs cPs
Pot life	@25°C; 50mm; 200 ml	25-35	Min
Po life(double initial vis-cosity)	EN 13702-2 @25°C EN 13702-2 @40°C	35-45 15-25	Min Min
Exothermic peak	@25°C; 50mm; 200 ml	100-115	°C
Gelation time	@25 °C; 15 ml; 6 mm @40 °C; 15 ml; 6 mm @50 °C; 15 ml; 6 mm	2.5-3.5 1-2 50-70	Hours Hours Min
Gelation time	UNI 8701@40 °C; 100 ml	44-52	Min
Demoulding time	@25 °C; 15 ml; 6 mm	8-10	Hours
Post-curing	@60 °C	15	hours

Cured Resin Properties

Property	Conditions	Value	Units
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;1h50 °C+2h70°C ASTM D3418;24hTA+15h60°C	53-58 60-67	°C °C
Water absorption	ASTM D570; 24h RT ASTM D570; 2h100°C	0.2-03 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	4-5	
Loss factor	ASTM D150 @25 °C	30-50	X 10 ⁻³

Cured Resin Properties

PROPERTIES	Conditions	Value	Unit
Volume resistivity	ASTM D257 @25 °C	2-10	$\times 10^{14}$ ohm-cm
Dielectric strength	ASTM D149 @25 °C	21-24	kV/mm
Flexural strength	ASTM D790	63-73	MN/m ²
Maximum strain	ASTM D790	1-1.5	%
Flexural elastic modulus	ASTM D790	6500-7500	MN/m ²
Tensile strength	ASTM D638	38-45	MN/m ²
Elongation at break	ASTM D638	1-2	%
Compressive strength	ASTM D695	84-88	MN/m ²

Fig.1 Viscosity profile of the resin MC62 as function of temperature

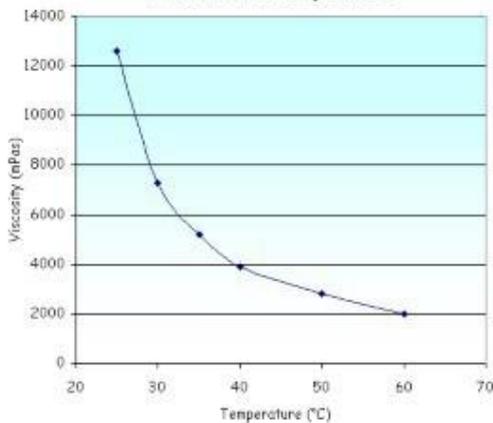
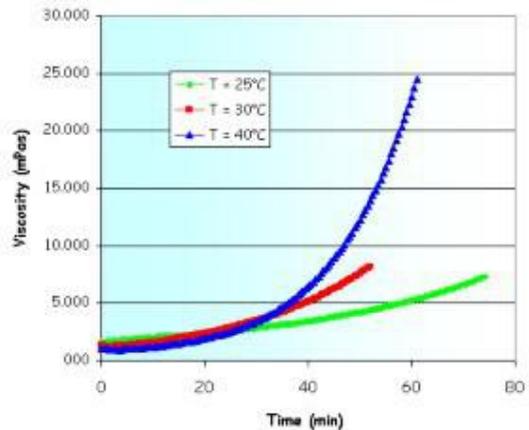


Fig.2 Viscosity profile of the resin/hardener mixture as function of temperature



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