ELANTAS

Technical Data Sheet

Elan-tron®
MC 5506 / W 5506 100:16

Filled, Fire Retardant, Halogen Free, RoHS Compliant, Epoxy Resin System for Potting, RT Curing

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Description

Elan-tron MC 5506 is a black coloured filled, solvent less, fire retardant, halogen free, RoHS compliant, epoxy compound. Elan-tron MC 5506 is a specially formulated and processed to obtain void free casting, potting and encapsulated components. It contains specially selected and processed fillers incorporated under vacuum mixing & has lower abrasive nature. It is ready to use filled system having low viscosity at processing temperature. It is a slower curing system with a low exotherm.

Elan-tron W 5506 is a low viscosity polyamide liquid hardener.

Areas of Application

Elan-tron MC 5506 in combination with W 5506 is suitable for: -

- Potting of auto electricals.
- Encapsulation of electrical and electronic components particularly sensitive to thermo-mechanical stress.

Processing

Manual potting. Under vacuum potting. Room temperature curing.

Properties of cured material

The cured mass of Elan-tron MC 5506 + W 5506 shows good mechanical, electrical & chemical properties. Because of special type of fillers in Elan-tron MC 5506, the cured mass shows good thermal shock resistance, reduced shrinkage, low coefficient of thermal expansion & increased thermal conductivity.

The combination of Elan-tron MC 5506 + W 5506 is suitable in thermal class 130 electrical components.

Application Method

In pre-filled products it is good practice to check and carefully rehomogenize the material if some settling is present. Add the proportionate 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 dearation step under vacuum of the mixture before casting.

Curing / Post curing

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

Properties of Elan-tron MC 5506 as supplied:

Colour & Appearance [*]	DBI 1001 [**]		Black filled resin
Viscosity at 25°C by (Brookfield) [*]	DBI 3005[**]	mPa.s	5000 - 13000
Density at 25°C	DBI 3047A [**]	g/ml	1.55 - 1.65
Storage stability [*]	When stored in original sealed container at R.T.	months	6
[*] These properties form our sales specification [**] DBI are our internal test methods and are available on request			

Properties of Elan-tron W 5506 as supplied:

Type of compound			Polyamide
Colour & Appearance [*]	DBI 1001 [**]		Yellow to brown clear liquid
Viscosity at 25°C by (Brookfield) [*]	DBI 3005[**]	mPa.s	300 – 700
Amine value	DBI 1012	mg.KOH/g	400 – 500
Density at 25°C	DBI 3047A[**]	g/ml	0.93 – 0.98
Storage stability [*]	When stored in original sealed container at R.T.	months	12

Mixing Proportion & Pot Life:

			Elan-tron MC 5506: W 5506
Mixing Ratio (Resin: Hardener)		Parts by weight	100: 16±1
Initial viscosity of mixture at 25°C at 40 °C	DBI 3005 [**]	mPa.s	2000 -2500 500 - 900
Temperature rise while curing at 25°C (Exotherm)	IEC 60455	°C	45
Pot life at 25°C [*]	DBI 1019 [**]	minutes	100 -130

Recommended Curing Cycle:

at
20°C – 48 hours ***or***
30°C – 20 - 24 hours ***or***
40°C – 16-20 hours ***or***
60 - 65°C – 1 - 2 hours + 12 hours at RT (25 - 40°C)

Note: Curing temperature recommended above is for guideline & depends on efficiency of oven & handling of potted components. In No case, temperature of the oven to exceed above the recommended range. The curing schedules suggested are for general guidance.

In case of casting, it is recommended to give a post cure of about 4-6 hours at 80°C after curing for 16 hours at room temperature.

The hardening of Elan-tron MC 5506 + W 5506 mixture takes place much earlier than the suggested curing time. Hence the demoulding operation or handling of the cast or potted component can be done earlier. This time should be decided in each case depending upon the mass and ambient temperature.

Properties of cured film (Typical):

Specimen cured for 16 h at R.T + 4 h at 80°C

Flexural strength	ISO 178	MPa	Flexible
Impact strength (Unnotched)	ISO 179	kJ/m^2	10
Compressive strength	ISO 604	MPa	Flexible
Tensile strength	ISO 527	MPa	4 - 7
Elongation at break	ISO 527	%	10 - 15
Hardness	ISO 868	Shore D	60 - 70
Water absorption (24 h, RT)	ISO 62	%	0.3 - 0.5
Glass transition temperature	ASTM E 1356	°C	0 -10
Linear thermal expansion (Tg -10 °C)	ASTM E 831	10^ -6 /°C	95 - 105
Linear thermal expansion (Tg +10 °C)	ASTM E 831	10^ -6 /°C	140 - 160
Flammability	UL 94 V-0	mm	6.4
Thermal shock (n°10 cycles pass)	Olyphant Insert	^oC	(-55) - (+180)
Thermal conductivity	ASTM C 518	W/ mK	0.65 -0.75

Dielectric Properties:

Specimen cured for 16 h at R.T + 4 h at 80°C

Dielectric strength IEC 60243 with 2 mm specimen	at RT	kV/mm	19 - 21
Volume resistivity at 500 V DC as per IEC 60455-2	at RT	ohm.cm	10^{13}
Dielectric constant at 30 V/1 kHz as per IEC 60455-2	at RT at 155^0C	-	5 NT
Dielectric loss factor 30 V/1 kHz as per IEC 60455-2	at RT at 155^0C	-	0.040 0.240
Track resistance by IEC 60112	at RT	CTI	>600

Resistance against solvents & chemicals:

Solvent resistance as per IEC 60455-2	25% H_2SO_4 5% NaOH	No change in colour No change in colour

Packaging:

Elan-tron MC 5506 : 25 kg in open mouth plastic container.
Elan-tron W 5506 : 25 kg in polyethylene containers

Safe Handling:

Elan-tron MC 5506 has hardly any effect on skin & mucous membrane. Elan-tron W 5506 is caustic and will affect skin. For detailed information on safe handling, refer to the material safety data sheets of Elan-tron MC 5506 & Elan-tron W 5506.

Disclaimer

This information is intended only for general guidance in the application of our product. It has been obtained by careful investigation and represents the present state of our knowledge and experience. Because of the large number of possible methods of application and processing we are not able to assume responsibility in any one particular case for either the technical results or the patent rights situation applicable to the country under consideration

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