

## Technical Data Sheet

**Elan-tron®**

**MC 4236 / W 4236**

**100:8**

(EpoxyLite® EIP 4236 RESIN / EpoxyLite® EIP 4236 HARDENER)

2-component epoxy potting compound

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**Application:**

Encapsulation, sealing and impregnation of electrical and electronic components.

**Processing:**

Manual and/or automatic casting. Under vacuum casting with automatic mixing / dispensing devices. The system can be processed at room temperature or with the resin component pre-heated to 40-50°C. Best results are achieved when the material is processed under vacuum.

**Description:**

Two component self-extinguishing, filled, epoxy system. Thermal class H (180°C). Good electrical and mechanical properties. High thermal conductivity. The system is UL 94 V-0 and listed (File E143115 and E116643). The system is RoHS compliant (European directive 2002/95/EC).

**Instructions:**

It is advisable to pre-heat the resin at 50°C to make easier the application of the product. In pre-filled products it is good practice to check and carefully re-homogenize the material if some settling is present. Add the appropriate quantity of hardener to the resin, mix carefully. Avoid air trapping.

**Curing / Post-curing:**

For a room temperature curing system post-curing 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.

**Storage:**

Epoxy resins and their hardeners can be stored for one year 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.

**Handling precautions:**

Refer to the safety data sheet and comply with regulations relating to industrial health and waste disposal.

#### Properties of Elan-tron MC 4236 as supplied:

Colour & Appearance [*]	DBI 1001 [**]		Black filled resin
Viscosity at 50 °C @ 5.0 rpm by (Brookfield) [*]	DBI 3005[**]	mPa.s	15,000 - 25,000
Density at 25 °C [*]	DBI 3047A [**]	g/ml	1.79 - 1.83
Storage stability [*]	When stored in original sealed container at R.T.	months	12
[*] These properties form our sales specification			
[**] DBI are our internal test methods and are available on request			

#### Properties of Elan-tron W 4236 as supplied:

Type of compound			Amine
Colour & Appearance [*]	DBI 1001 [**]		Colorless to pale yellow liquid
Viscosity at 25 °C by (Brookfield) [*]	DBI 3005[**]	mPa.s	35 -55
Density at 25 °C	DBI 3047A[**]	g/ml	0.97 -1.01
Storage stability [*]	When stored in original sealed container at R.T.	months	12

#### Mixing Proportion & Pot Life:

			Elan-tron MC 4236: W 4236
Mixing Ratio (Resin: Hardener)		by weight by volume	100: 8 100:15
Initial viscosity of mixture at 25 °C at 40 °C at 60 °C	DBI 3005 [**]	mPa.s	4,000 – 6,500 2,500 – 4,000 1,200 – 1,800
Pot life(doubled initial viscosity) at 40 °C at 60 °C	DBI 1019 [**]	min	20 - 30 10 - 15
Gel time at 25 °C	DBI 3026[**]	hours	3 - 4
Gel time at 50 °C	DBI 3026[**]	min	30 - 40
Demoulding time at 25 °C		hours	10 -12

#### Recommended Curing Cycle:

24 hours at 25 °C or 6 hours at 50 °C

The curing time is after the component or mould attains specified temperature. Time required to heat up moulds, etc. should be added in the above suggested curing time.

### Properties of cured film (Typical):

Specimen Curing - 24 hours at 25°C +15 hours at 60°C

		UM	Elan-tron (MC 4236 + W 4236)
Surface			Bright
Density at 25°C		g/ml	1.70 -1.74
Hardness	ISO 868	Shore D /15	83 - 87
Glass transition (Tg)	ASTM D 3418	°C	40 - 50
Linear thermal expansion (Tg -10°C)	ASTM E 831	10 <sup>-6</sup> /°C	25 - 35
Linear thermal expansion (Tg +10°C)	ASTM E 831	10 <sup>-6</sup> /°C	105 - 125
Flammability	UL 94 V-0	mm	3.2
Thermal conductivity	ASTM C 518	W/m.K	0.85 - 0.95
Flexural strength	ISO 178	MPa	40 - 50
Strain at break	ISO 178	%	1.0 - 1.5
Flexural elastic modulus	ISO 178	MPa	5.000 – 6.000
Tensile strength	ISO 527	MPa	25 - 35
Elongation at break	ISO 527	%	0.8 - 1.6

### Dielectric Properties:

Specimen Curing - 24 hours at 25°C +15 hours at 60°C

Dielectric strength IEC 60243 with 2 mm specimen	at RT	kV/mm	18 - 20
Volume resistivity at 500 V DC as per IEC 60455-2	at RT	ohm.cm	1 X 10 <sup>15</sup> - 8 X 10 <sup>15</sup>
Dielectric constant at 250 V/50 Hz	at RT	-	3.4 - 4.5
Dissipation factor at 250 V/50 Hz	at RT	X 10 <sup>-3</sup>	35 - 45
Track resistance by IEC 60112	at RT	CTI	>600

### Packaging:

Elan-tron MC 4236 : 6 kg in metal container &15 kg in open mouth plastic container.  
Elan-tron W 4236 : 5 kg in polyethylene containers.

### Safe Handling:

Elan-tron MC 4236 has hardly any effect on skin & mucous membrane. Elan-tron W 4236 is caustic and will affect skin. For detailed information on safe handling, kindly refer material safety data sheets of Elan-tron MC 4236 & Elan-tron W 4236.

## 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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