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**Technical Data Sheet**

# Elan-tron® MC 5611 RC + Hardener 43

Room Temperature Curing, Filled, Highly Flexible, Epoxy System for Potting

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## Description

Elan-tron MC 5611 RC is medium viscosity, flexible, RoHS 3.0 & REACH compliant (for 211 substance), liquid epoxy-based compound, highly suitable for the electrical and electronics industry. It has been specially formulated to offer customer a system which does not require any further preparation at their end. It is filled with pre-dried inorganic fillers, thoroughly blended and entrapped air completely removed under high vacuum.

With polyamide amine (Hardener 43) it offers the following advantages:

- Highly flexible cured mass
- Pore and void free encapsulation
- Pourable consistency
- Good adhesion to various material
- Excellent mechanical and electrical properties
- Good resistance to water and chemicals
- Low shrinkage
- Improved coefficient of linear thermal expansion
- Improved crack resistance
- Good resistance to thermal shock

## Areas of Application

Ideal for potting, sealing and encapsulation of small and medium size electrical and electronic components such as:

- Auto electricals
- Filters
- Capacitors
- Flashers
- PCB assemblies

## Application Method

Elan-tron MC 5611 RC is filled system & needs gentle but thorough stirring before use, to ensure homogeneity and to avoid formation of air bubbles. Depending upon the end use, additional amounts of dried fillers, e.g. quartz powder, silica flour etc. may be used.

Elan-tron MC 5611 RC / Hardener 43 is room temperature curing system.

## Properties of Elan-tron MC 5611 RC as supplied:

| | | | |
|---|---|---|---|
| Colour & Appearance [*] | DBI 1001 [**] | | Black filled epoxy resin |
| Viscosity at 25 °C by Brookfield [*] | DBI 3005 [**] | mPa.s | 8000 - 14000 |
| Density at 25 °C [*] | DBI 3047A [**] | g / ml | 1.26 - 1.46 |
| Flash point (Open cup) | DIN 51584 | °C | >100 |
| Storage stability [*] | When stored in original sealed container at R.T. | months | 06 |
| [*] These properties form our sales specification<br>[**] DBI are our internal test methods and are available on request | | | |

## Properties of Hardener 43 as supplied:

| | | | |
|---|---|---|---|
| Type of compound | | | Polyamide amine |
| Colour & Appearance [*] | DBI 1001 [**] | | Dark brown to Orange liquid |
| Viscosity at 25 °C [*] | DBI 3005 [**] | mPa.s | 300 - 700 |
| Density at 25 °C | DBI 3047A [**] | g / ml | 0.97 ± 0.1 |
| Amine value [*] | DBI 1012[**] | mg KOH/g | 340 - 460 |
| Flash point (Open cup) | DIN 51584 | °C | > 100 |
| Storage stability [*] | When stored in original sealed container at R.T. | months | 12 |

## Mixing Proportion & Pot Life:

| | | | Elan-tron MC 5611 RC : Hardener 43 |
|---|---|---|---|
| Mixing Ratio (Resin: Hardener) | | Parts by Wt | 100: 20 ± 1.5 |
| Initial Viscosity of mixture at 25 $^{o}$C | DBI 3005[**] | mPa.s | 4000(typical) |
| Pot life at 25°C [*] | DBI 1019 [**] | min | 200 - 240 |
| Gel time at 25°C for 240 g mix [*] | - | min | 220 - 260 |

## Recommended Curing Cycle:

12-16 h at RT + 4-6 h at 80-100°C ***OR***
1- 2 h at 60 -65°C + 12 h at RT

The curing schedule suggested is for general guideline purpose. The actual curing schedule needs to be decided based on application conditions.

## Properties of the Cured Resin:

Specimen Curing - 16 h at R.T + 4 h at 80°C

| Mechanical Properties | | | |
|---|---|---|---|
| Density at 25 ºC | IEC 60455 | g /cm$^3$ | 1.30 ± 0.1 |
| Tensile strength | ISO 527 | MPa | 1.7 |
| Elongation at break | ISO 527 | % | 46 |
| Flexural strength | ISO178 | MPa | Flexible |
| Water absorption | ISO 62 | % | 0.3 maximum |
| Hardness | ISO 868 | Shore A | 55 – 70 |
| Thermal conductivity | ASTM C 518 | W/mK | 0.46 |
| Glass transition temperature | ASTM D 3418 | °C | 5 – 15 |
| Linear thermal expansion<br>Below Tg<br>Above Tg | ASTM E 831 | <br>x $10^{-6}/^0$C<br>x $10^{-6}/^0$C | <br>75 - 95<br>180 - 200 |

## Dielectric Properties:

Specimen Curing - 16h at R.T +4h at 80°C

| | | | |
|---|---|---|---|
| Dielectric strength IEC 60243 with 3 mm specimen | at RT | kV/mm | 16 |
| Volume resistivity at 500 V DC as per IEC 60455-2 | at RT | ohm.cm | 1 x$10^{12}$ |
| Dielectric constant at 30 V/1 kHz as per IEC 60455-2 | at RT<br>at 155$^0$C | - | NT<br>NT |
| Dielectric loss factor 30 V/1 kHz as per IEC 60455-2 | at RT<br>at 155$^0$C | - | NT<br>NT |
| Track resistance by IEC 60112 | at RT | Volts | >600 |

## Chemical Properties:

| | | |
|---|---|---|
| Solvent resistance as per IEC 60455-2 | 25% $H_2SO_4$<br>5% NaOH | No change in colour<br>No change in colour |

## Packaging:

Elan-tron MC 5611 RC : 25 kg in open mouth polybucket.
Hardener 43 : 25 kg in polycontainers.

## Safe Handling:

Elan-tron MC 5611 RC has hardly any effect on skin & mucous membrane. Hardener 43 is caustic and will affect skin. For detailed information on safe handling, kindly refer to material safety data sheets of Elan-tron MC 5611 RC & Hardener 43.

## *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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