EN

Preliminary Technical Data Sheet

Elan-glue®

EP 5611

Electronic Adhesive

Modified Epoxy - One Component - UV Cure
Very Fast Cure - High Thermal Resistance

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Description

Elan-glue® EP 5611 represents a dual curing, highly viscous, filled thixotropic, solvent-free, single component formulation based on epoxy resin.

The Elan-glue® EP 5611 is suitable for a large range of adhesive applications. The cured material provides an excellent adhesion to common substrates.

- Satisfies the requirements of RoHS.

Areas of application

Elan-glue® EP 5611 has been designed to provide with a tough, high temperature resistant, moisture and chemical resistant adhesive to fix and protect components on an electronic board. The applied material will remain in place during cure.

The cured product is semi flexible and will not damage sensitive components under thermal stress, including low temperatures.

Properties of cured product

Elan-glue® EP 5611 has following properties in cured conditions:

- Good adhesion to plastics and metals
- Curing up to 2 mm depth
- Low cure shrinkage
- Low thermal expansion coefficient
- Thermally conductive

Storage and stability

Elan-glue® EP 5611 is a frozen product supplied in syringes in sealed packages. The product should be stored at a temperature at - 18°C in its original sealed container to avoid any potential contamination and ensure maximum shelf-life.

Pot life of Elan-glue® EP 5611 is one week at +25°C is Protection against any kind of UV light is essential. Store accordingly to any specific instruction listed on the product label. Product should be used prior to the expiry date marked on the label.

Preparation

The packages should be allowed to reach their application temperature, 25 to 30 °C, before use to allow the viscosity to reach the specified level.

Processing methods

Elan-glue® EP 5611 should be applied directly from the packages with a dispenser or similar system. During dispensing, the shear applied to the resin, governed by the diameter, length and applied pressure on the dispensing needle, substantially reduces the viscosity allowing fast processing.

Any UV-light will start the curing reaction willingly or unintentionally. If Elan-glue® EP 5611 is transferred to a second package or applicator, ensure proper protected against UV-light.

Curing/Post-curing

UV curing e.g.
1-3s at 50 mW/cm² UVA, λ = 300-400nm
1-3s at 50 mW/cm² UVA + 30min@150°C

Thermal Curing (without UV)
150°C @ 30min or
140°C @ 60min or
130°C @ 90min or
120°C @ 120 min

Increased temperatures can reduce the curing time. Heating in a conventional oven is suitable for curing. To ensure satisfactory adhesion to the PCB surface the following should be checked:

- Use of residue-free substrates
- Ensure dry surfaces
- Check compatibility of the glue resin with the surfaces

Handling precautions

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

Sales specifications

Properties	Conditions	Test Method	Value	M/U
Viscosity	25 °C - Z3, D=50/s	DIN 53019 (Internal Test V18/b/c)	25000 ÷ 40000	mPa·s

Typical system properties

Properties	Conditions	Test Method	Value	M/U
Appearance		Visual method	Pale white - grey	
Shelf life	Unopened original packaging at < -18 °C	Internal Test	12	months
Density	25 °C	DIN 53217	1,59 ÷ 1,67	g/cm³

Typical mechanical properties of the cured product

Properties	Conditions	Test Method	Value	M/U
Hardness Shore D	25 °C	ISO 868 (Internal Test M30b)	85 ÷ 95	Shore D
Shear resistance on Aluminium	23 °C	ISO 527-2 (Internal Test M29)	> 10	N/mm²

Typical thermal properties of the cured product

Properties	Conditions	Test Method	Value	M/U
Glass transition temperature (Tg)	10 K/min	TMA (Internal Test M56)	140 ÷ 150	°C
Thermal conductivity		DIN 52613 (Internal Test M98a)	0,40 ÷ 0,50	W/(m·K)
Coefficient of thermal expansion	-30 to +125°C non-linear	TMA (Internal Test M56)	40 ÷ 80	ppm/K
Thermal stability	Mass loss at 250 °C	Internal Test	< 1,5	%

Typical dielectric properties of the cured product

Properties	Conditions	Test Method	Value	M/U
Volume resistivity	23 °C - Initial value	IEC 60464 -2 (Internal Test M5)	2×10^{14}	Ω·cm
	23 °C - After 7d water immersion		7×10^{11}	Ω·cm
Dielectric Strength	23 °C - foil - sphere against plate	IEC 60455-2 (Internal Test M31)	25 ÷ 29	kV/mm
Dielectric constant at 10 kHz	21 °C	IEC 60250 (Internal Test M03b)	5,6	
	156 °C		6,3	
Dielectric dissipation at 10 kHz	21 °C	IEC 60250 (Internal Test M03b)	< 0,04	
	156 °C		< 0,03	
Volume resistivity at temperature	21 °C	IEC 60464 (Internal Test M13)	3×10^{14}	Ω·cm
	156 °C		4×10^{10}	Ω·cm

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