

Polytec EC 101-L-frozen

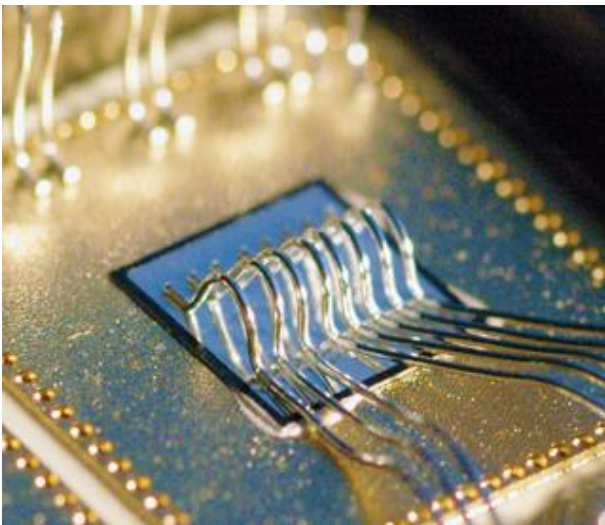
Properties

Polytec EC 101-L-frozen is a one-component, solvent-free, pre-mixed-frozen epoxy with a long pot life and excellent electrical conductivity.

Polytec EC 101-L-frozen can be used for high volume chip and substrate bonding and in micro-electronic, medical, hybrids and optoelectronic application.

It can be cured at 95°C or in rapid cure cycles at higher temperatures.

The material can be applied by dispensing, jet-dispensing or manually.



Processing

- The cooling during transport is assured by dry ice (-78 °C) and a temperature indicator.
- Use insulated gloves when touching any component of the packaging.
- The storage temperature of frozen adhesives should not exceed -40 °C.
- The cartridges should be opened only when they have been brought to room temperature (thawing curve see page 3).
- Store cartridges in vertical position while thawing (top down).
- Do not accelerate the thawing by hand heat or warm water (risk of air inclusions)
- Please remove condensed water before opening.
- Surfaces should be clean, thus free of dirt, grease, oil, dust or process chemicals.
- Please notice respective minimum curing temperature and time.
- For Safety information please refer to the respective Material Safety Data Sheet.

Polytec EC 101-L-frozen
Electrically Conductive Adhesive
Technical Data

Polytec EC 101-L-frozen

| Properties in uncured state | Method | Unit | Technical Data |
|---|----------|-------------------|----------------|
| Chemical basis | - | - | Epoxy |
| No. of components | - | - | 1 |
| Mixing ratio (weight) | - | - | - |
| Mixing ratio (volume) | - | - | - |
| Pot life at 23°C | TM 702 | h | 48 |
| Storage Stability at -40°C | TM 701 | months | 12 |
| Consistency | TM 101 | - | Creamy Paste |
| Density Mix | TM 201.2 | g/cm ³ | 2.90 |
| Density A-Part | TM 201.2 | g/cm ³ | - |
| Density B-Part | TM 201.2 | g/cm ³ | - |
| Type of filler | - | - | Silver |
| Max. particle size | - | µm | <30 |
| Viscosity Mix 84 s ⁻¹ at 23°C | TM 202.1 | mPa·s | 7 000 |
| Viscosity A-Part 84 s ⁻¹ at 23°C | TM 202.1 | mPa·s | - |
| Viscosity B-Part 84 s ⁻¹ at 23°C | TM 202.1 | mPa·s | - |

| Properties in cured* state | Method | Unit | Technical Data |
|---|-----------------|-------------------|----------------------------|
| Color | TM 101 | - | Silver |
| Hardness (Shore D) | DIN EN ISO 868 | - | 85 |
| Temperature resistance continuous | TM 302 | °C | -55 / +200 |
| Temperature resistance short term | TM 302 | °C | -55 / +300 |
| Degradation Temperature | TM 302 | °C | +400 |
| Glass Transition Temperature (T _g) | TM 501 | °C | 80 |
| Coefficient of thermal expansion (<T _g) | ISO 11359-2 | ppm | 40 |
| Coefficient of thermal expansion (>T _g) | ISO 11359-2 | ppm | 114 |
| Thermal conductivity | - | W/m·K | 1.5 |
| Specific volume resistivity | DIN EN ISO 3915 | Ω·cm | 1 – 4 · 10 ⁻⁴ |
| Electrical conductivity | DIN EN ISO 3915 | S/m | 1 – 0.25 · 10 ⁶ |
| Elasticity modulus | TM 605 | N/mm ² | 7 000 |
| Tensile Strength | TM 605 | N/mm ² | 34 |
| Lap shear strength (Al/Al) | TM 604 | N/mm ² | - |
| Elongation at break | TM 605 | % | 1.1 |
| Water absorption 24 h, 23°C | TM 301 | % | 0.4 |

*The above data has been determined with samples cured at 150°C. Please notice, by varying the curing temperature these properties can be influenced to some extent.

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| Curing* | Method | Unit | Technical Data |
|----------------------------|--------|------|----------------|
| Minimum curing temperature | | °C | 95 |
| Curing time at 100°C | | min | 60 |
| Curing time at 120°C | | min | 15-20 |
| Curing time at 150°C | | min | 10 |
| Curing time at 180°C | | s | 60 |

*Curing temperatures refer to the temperature in the respective bond line. When choosing the respective curing conditions, the time needed to heat the substrate has to be considered. Depending on the type of heat source (convection oven, hot stamp, heating plate) the heat input may vary.

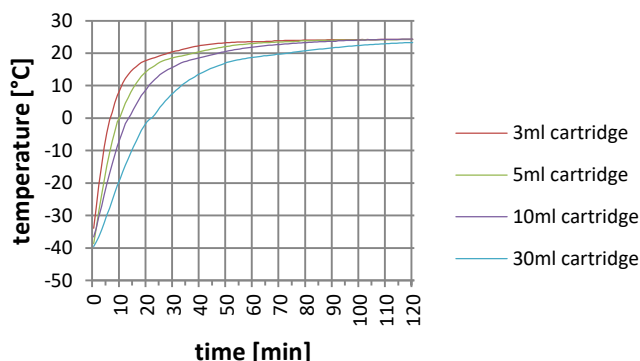
Standard pack sizes:

3 cc*/ 8 g, 5 cc*/ 13 g,
10 cc*/ 26 g, 30 cc*/ 78 g

Customized Packaging

*:EFD-cartridges

Thawing curve -40°C (frozen)



Please note:

The information listed above is typical data based on tests and is believed to be accurate. Polytec PT makes no warranties (expressed or implied) as to their accuracy. The data listed above does not constitute specifications. The processing (particularly the curing conditions) of the material, the process control, and the variety of different applications at various customers are not under Polytec PT's control. Therefore, Polytec PT will not be liable for concrete results in any specific application or in any connection with the use of this product. The curing conditions have a major effect on the properties of the cured material. Therefore, it is highly recommended to keep the curing schedule – once established - under tight control. With the release of this data sheet all former data sheets will be null and void.

Subject to alteration.

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