

# Polytec PU 1000

## Properties

Polytec PU 1000 is a one-component, room-temperature curing, highly flexible polyurethane-adhesive with excellent electrical conductivity.

Polytec PU 1000 has been specifically developed for contacting chip modules on dual interface smart cards. It is used in micro electronics, hybrid and electronic applications.

Polytec PU 1000 cures at room temperature or accelerated with heat.

Polytec PU 1000 stands out due to its high flexibility combined with mechanical strength.

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

## Processing

- Polytec PU 1000 can be dispensed directly from the syringe.
- For optimum storage stability we recommend storage in a fridge at 5-8°C. However, the product needs to be prevented from freezing, prolonged storage above 25 °C should be avoided.
- Plastic needles are preferred for dispensing, since steel needles are prone to clogging.
- Surfaces should be clean, thus free of dirt, grease, oil, dust or process chemicals.
- For Safety information please refer to the respective Material Safety Data Sheet.



## Polytec PU 1000

## Electrically Conductive Polyurethane Adhesive

## Technical Data

# Polytec PU 1000

Properties in uncured state	Method	Unit	Technical Data
Chemical basis	-	-	Polyurethane Dispersion
No. of components	-	-	1
Mixing ratio (weight)	-	-	-
Mixing ratio (volume)	-	-	-
Potlife at 23°C	TM 702	h	-
Storage Stability at 6-8°C	TM 701	Months	6
Consistency	TM 101	-	Creamy Paste
Density Mix	TM 201.2	g/cm <sup>3</sup>	1.72
Density A-Part	TM 201.2	g/cm <sup>3</sup>	-
Density B-Part	TM 201.2	g/cm <sup>3</sup>	-
Type of filler	-	-	Silver
Max. particle size	-	µm	<30
Viscosity Mix 84 s <sup>-1</sup> at 23°C	TM 202.1	mPa·s	12 000
Viscosity A-Part 84 s <sup>-1</sup> at 23°C	TM 202.1	mPa·s	-
Viscosity B-Part 84 s <sup>-1</sup> 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	-	35
Temperature resistance continuous	TM 302	°C	-40 / +100
Temperature resistance short term	TM 302	°C	-40 / +200
Degradation Temperature	TM 302	°C	280
Glass Transition Temperature (T <sub>g</sub> )	TM 501	°C	-
Coefficient of thermal expansion (<T <sub>g</sub> )	ISO 11359-2	ppm	-
Coefficient of thermal expansion (>T <sub>g</sub> )	ISO 11359-2	ppm	-
Thermal conductivity	TM 502	W/m·K	1.8
Specific volume resistivity	TM 401	Ω·cm	2 –4 · 10 <sup>-4</sup>
Electrical conductivity	TM 401	mS/m	-
Elasticity modulus	TM 605	N/mm <sup>2</sup>	ca. 200
Tensile Strength	TM 605	N/mm <sup>2</sup>	ca. 8
Lap sheer strength (Al/Al)	TM 604	N/mm <sup>2</sup>	-
Elongation at break	TM 605	%	ca. 1.2
Water absorption 24 h, 23°C	TM 301	%	-

\*The above data have been determined with samples cured at 80 °C. By varying the curing temperature these properties can be influenced to some extent.

# Polytec PU 1000

Curing*	Method	Unit	Technical Data
Minimum curing temperature		°C	15
Curing time at 23°C		h	0.5 – 4
Curing time at 80°C		min	-
Curing time at 100°C		min	5 – 10
Curing time at 120°C		min	-
Curing time at 150°C		min	-
Curing time at 180°C		s	2

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

Polytec PU 1000 firstly sets by physical drying. Therefore curing time strongly depends on the type of substrate and bond-line thickness. Thicker bond lines require longer curing times compared to thin bond lines, porous substrates accelerate the curing process.

## Standard pack sizes:

3 cc\* / 5 g, 5 cc\* / 7 g, 10 cc\* / 17 g, 30 cc\* / 45 g

\*: EFD-cartridges

Customized Packaging

## Please note:

The above listed information are typical data based on tests and are believed to be accurate. Polytec PT makes no warranties (expressed or implied) as to their accuracy. The above listed data do not constitute specifications. The processing (in particular the cure 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. In particular the cure conditions do have a major effect on the properties of the cured material. Therefore it is highly recommended to keep the cure schedule – once established - under tight control. With the release of this data sheet all former data sheets will be null and void.

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