

# Polytec TC 422

## Properties

Polytec TC 422 is a pasty, two component adhesive for thermal management in electronics, hybrid technology, sensor technology and power engineering.

Polytec TC 422 has a great thermal conductivity and an excellent adhesion, especially to metals such as aluminum and stainless steel. It is also characterized by its high mechanical strength and thermal resistance.

The application can be performed directly from the side-by-side cartridge with a static mixing tube, using a dispensing gun.



## Processing

- The processing of two-component products from side-by-side cartridges is very simple.
- The cartridge is inserted into a suitable dispensing gun. The closing cap of the cartridge is then removed and replaced by an according static mixing nozzle.
- By activating the trigger of the dispensing gun, the two components are pressed out and automatically mixed in the static mixer.
- In order to prevent mixing errors, dispose the first half of the content in the mixing nozzle prior to application.
- Processing should be carried out rapidly after mixing the components; as an indication, the pot life can be used.
- When the pot life is exceeded, the mixing tube should be replaced with a new one.
- Close the cartridge with the cap after use.
- Surfaces should be clean, thus free of dirt, grease, oil, dust or process chemicals.
- Please take care of respective minimum curing temperature and time.
- For Safety information please refer to the respective Material Safety Data Sheet.

# Polytec TC 422

## Thermally Conductive Adhesive

### Technical Data

# Polytec TC 422

Properties in uncured state	Method	Unit	Technical Data
Chemical basis	-	-	Epoxy
No. of components	-	-	2
Mixing ratio by weight	-	-	100:55
Mixing ratio by volume	-	-	2:1
Pot life at 23°C	TM 702	h	1
Shelf life at 23°C	TM 701	months	12
Consistency	TM 101	-	Pasty
Density Mix	TM 201.2	g/cm <sup>3</sup>	1.9
Density A-Part	TM 201.2	g/cm <sup>3</sup>	1.8
Density B-Part	TM 201.2	g/cm <sup>3</sup>	2.0
Type of filler	-	-	-
Max. particle size	-	µm	-
Viscosity mix 10 s <sup>-1</sup> at 23°C	TM 202.1	mPa·s	50000
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
Colour	TM 101	-	Blue
Hardness (Shore D)	DIN EN ISO 868	-	85
Max. service temperature (continuous)	TM 302	°C	-55/+160
Max. service temperature (short-term)	TM 302	°C	-55 / +260
Degradation temperature	TM 302	°C	310
Glass transition temperature (T <sub>g</sub> )	TM 501	°C	65
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	0.8 ±0.1
Specific volume resistivity	DIN EN ISO 3915	Ω·cm	-
Young's modulus	TM 605	N/mm <sup>2</sup>	7500
Tensile strength	TM 605	N/mm <sup>2</sup>	44
Lap shear strength (Al/Al)	TM 604	N/mm <sup>2</sup>	19
Elongation at break	TM 605	%	1.2
Water absorption 24 h, 23°C	TM 301	%	-

\*The above data has been determined with samples cured at room temperature. 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	15
Curing time at 23°C		h	24
Curing time at 80°C		min	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:

50 mL 2K-cartridges

Customized packaging

## 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.

Polytec PT GmbH  
Polymere Technologien  
Ettlinger Straße 30  
76307 Karlsbad  
Germany  
Tel. +49 (0) 7243 604-4000  
Fax +49 (0) 7243 604-4200  
info@polytec-pt.de  
www.polytec-pt.de

Polytec PT GmbH  
Polymere Technologien  
plant Maxdorf  
Bahnhofstraße 1  
67133 Maxdorf  
Germany  
info@polytec-pt.de  
www.polytec-pt.de

Polytec France S.A.S.  
TECHNOSUD II  
Bâtiment A  
99, Rue Pierre Semard  
92320 Châtillon - France  
Phone. +33 (0)1 49 65 69 00  
Fax +33 (0)1 57 19 59 60  
info@polytec.fr  
www.polytec-pt.com