

# Polytec TC 420

## Properties

Polytec TC 420 is a two-component, thermally conductive, electrically insulating adhesive and potting material.

Polytec TC 420 has an excellent adhesion to Au, Cu, FR4, Al and most plastics and offers a fast curing including a color change upon cure.

It was designed for heat sinking, heat dissipation, Glob Top, potting and sealing applications in the semiconductor, medical, hybrid, sensor and microelectronics industry.

The material can be applied via dispensing or manual application.



## Processing

- For two-component products the components A and B should be mixed carefully within the specified mixing ratio.
- For filled products both components should be homogenized carefully prior mixing, in order to prevent a possible settling of the filler.
- Processing should be carried out rapidly after mixing the components; as an indication the pot life can be used.
- Surfaces should be clean, thus free of dirt, grease, oil, dust or process chemicals.
- One-component products can be applied directly and are not subject to a pot life (except pre-mixed/frozen products).
- Please take notice of respective minimum curing temperature and time.
- For Safety information please refer to the respective Material Safety Data Sheet.

# Polytec TC 420

## Thermally Conductive Adhesive

### Technical Data

# Polytec TC 420

Properties in uncured state	Method	Unit	Technical Data
Chemical basis	-	-	Epoxy
No. of components	-	-	2
Mixing ratio (weight)	-	-	9:1
Mixing ratio (volume)	-	-	-
Pot life mixture at 23°C	TM 702	h	24
Storage Stability at 23°C	TM 701	Months	12
Consistency	TM 101	-	Creamy paste
Density Mix	TM 201.2	g/cm <sup>3</sup>	2.12
Density A-Part	TM 201.2	g/cm <sup>3</sup>	2.46
Density B-Part	TM 201.2	g/cm <sup>3</sup>	0.95
Type of filler	-	-	Aluminium oxide
Max. particle size	-	µm	<50
Viscosity Mix 84 s <sup>-1</sup> at 23°C	TM 202.1	mPa·s	8 000
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 (before / after curing)	TM 101	-	Light grey / rusty brown
Hardness (Shore D)	DIN EN ISO 868	-	85
Temperature resistance continuous	TM 302	°C	-55 / +200
Temperature resistance short term	TM 302	°C	-55 / +250
Degradation Temperature	TM 302	°C	+350
Glass Transition Temperature (T <sub>g</sub> )	TM 501	°C	+50
Coefficient of thermal expansion (<T <sub>g</sub> )	ISO 11359-2	ppm	22
Coefficient of thermal expansion (>T <sub>g</sub> )	ISO 11359-2	ppm	114
Thermal conductivity	TM 502	W/m·K	1.0 ±0.1
Specific volume resistivity	DIN EN ISO 3915	Ω·cm	-
Young modulus	TM 605	N/mm <sup>2</sup>	15 000
Tensile strength	TM 605	N/mm <sup>2</sup>	62
Lap shear strength (Al/Al)	TM 604	N/mm <sup>2</sup>	-
Elongation at break	TM 605	%	0.5
Water absorption 24 h, 23°C	TM 301	%	-

\*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 extend.

# Polytec TC 420

Curing*	Method	Unit	Technical Data
Minimum curing temperature		°C	-
Curing time at 23°C		h	-
Curing time at 100°C		min	30
Curing time at 120°C		min	15
Curing time at 150°C		min	5

\*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:

250 g, 500 g

1 kg, 25 kg

Customized Packaging

Also available as pre-mixed frozen product

## 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.

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  
<http://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  
<http://www.polytec-pt.com>

Polytec South-East Asia Pte Ltd  
Blk 4010 Ang Mo Kio Ave 10  
#06-06 Techplace I  
Singapore 569626  
Tel. +65 6451 0886  
Fax +65 6451 0822  
info@polytec-sea.com  
<http://www.polytec-pt.com>