

Polytec TC 417

Properties

Polytec TC 417 is a two component, thermally conductive, electrically insulating epoxy. It is used in various thermal management applications, especially for potting of large volumes.

Polytec TC 417 has an excellent chemical and moisture resistance. It has an excellent adhesion to glass, metal, ceramic, FR4 and most plastics. The room temperature cure allows to bond temperature sensitive substrates very conveniently.

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 417

Thermally Conductive Adhesive

Technical Data

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Properties in uncured state	Method	Unit	Technical Data
Chemical basis	-	-	Epoxy
No. of components	-	-	2
Mixing ratio (weight)	-	-	100:13
Mixing ratio (volume)	-	-	100:27
Pot life 15g mixture at 23°C	TM 702	h	6
Storage Stability at 23°C	TM 701	Months	12
Consistency	TM 101	-	Flowable paste
Density Mix	TM 201.2	g/cm ³	1.83
Density A-Part	TM 201.2	g/cm ³	2.1
Density B-Part	TM 201.2	g/cm ³	1.0
Type of filler	-	-	Aluminiumoxide
Max. particle size	-	µm	<50
Viscosity Mix 84 s ⁻¹ at 23°C	TM 202.1	mPa·s	4 500
Viscosity A-Part 84 s ⁻¹ at 23°C	TM 202.1	mPa·s	60 000
Viscosity B-Part 84 s ⁻¹ at 23°C	TM 202.1	mPa·s	15

Properties in cured* state	Method	Unit	Technical Data
Color	TM 101	-	Black
Hardness (Shore D)	DIN EN ISO 868	-	85
Temperature resistance continuous	TM 302	°C	-55 / +180
Temperature resistance short term	TM 302	°C	-55 / +250
Degradation Temperature	TM 302	°C	+300
Glass Transition Temperature (T _g)	TM 501	°C	+90
Coefficient of thermal expansion (<T _g)	ISO 11359-2	ppm	27
Coefficient of thermal expansion (>T _g)	ISO 11359-2	ppm	140
Thermal conductivity	TM 502	W/m·K	0.8 ±0.1
Specific volume resistivity	DIN EN ISO 3915	Ω·cm	10 ¹³
Young modulus	TM 605	N/mm ²	9 200
Tensile strength	TM 605	N/mm ²	71
Lap shear strength (Al/Al)	TM 604	N/mm ²	18
Elongation at break	TM 605	%	1.1
Water absorption 24 h, 23°C	TM 301	%	0.1

*The above data has been determined with samples cured at 50 °C/16 h + 150 °C/30 min. Please notice, by varying the curing temperature these properties can be influenced to some extend.

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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 time at 100°C		min	30
Curing time at 120°C		min	-

*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.

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