Technical Information

Polytec UV 2133

Description

- one-component hybrid
- solvent-free
- UV/VIS curing

Product properties

- highly viscous
- thixotropic
- high strength
- highly filled
- impact resistant
- temperature shock resistant
- media resistant
- very low shrinkage

Special features

- no stringing

Applications

- bonding, potting
- alignment in high precision (optical) application

Processing information

After application, the joining of the parts should be done quickly, as some products already cure with daylight. Any contact of the adhesive with base metals, contamination with amines or reducing agents (e.g. vitamin C) should be strictly avoided, as this may lead to undesired premature curing of the product (e.g. in the metering unit).

Surface preparation

The surfaces to be bonded should be free of dust, oil, grease or other contaminants in order to obtain an optimum and reproducible bond. For lightly soiled parts, wiping with isopropanol or ethanol is sufficient. Substrates that have a low surface energy (e.g. polyethylene, polypropylene, Teflon) must be physically pretreated (e.g. with atmospheric plasma or corona) to achieve sufficient adhesion.

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UV-light curing hybrid adhesive

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Properties in the uncured state	Method	Unit	Technical data
Chemical base	-	-	hybrid
Color	-	-	grey
Number of components	-	-	1
Shelf life at max. 10°C	-	Month	6
Consistency	-	-	highly viscous, thixotropic
Density	-	g/cm³	app. 1.78
Filler	-	-	yes
Viscosity rheometer, plate/plate	10 s^{-1} at 23°C	mPa·s	app. 45,000

Properties in the cured state	Method	Unit	Technical data
Shore-hardness	Shore D curing at 395 nm*	-	80
Service temperature	-	°C	-40 / +150
Max. temperature short term	-	°C	app. +250
Glass transition temperature T_g	DMTA	°C	114
Storage modulus E' at 23°C	DMTA	MPA	260
Coefficient of thermal expansion CTE at 20°C	TMA	ppm/K	49
Compression shear strength Glass/glass Glass/aluminum	curing at 395 nm*	N/mm²	 34.2 31.2
Tensile strength	curing at 395 nm*	N/mm²	17.5
Elongation at break	curing at 395 nm*	%	2.0
Water absorption 24 hrs. 23°C 85°C	gravimetric, curing at 395 nm*	%	 0.1 0.7
Outgassing 24 hrs. at 150°C	gravimetric, curing at 395 nm*	%	1.0
Volume shrinkage	-	%	1.7

*For some products, the through-curing is limited in 3 mm or by substrates, therefore the curing time for the determination of the measured value is adjusted individually.

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Curing*	Method	Unit	Technical data
Feasible UV-wavelength range	-	nm	365 - 405
Optimum wavelength range for curing	-	nm	395 - 405
Curing dose at 395 nm in 1 mm layer	-	mJ/cm²	6,000
Curing time at 1,500 mW/cm² @395 nm in 1mm layer	-	sec	4

*High-power LED lamps are recommended for curing in order to introduce the optimum dose and wavelength with the highest possible energy yield and the lowest possible temperature load on the substrate.

Work and health protection

See safety data sheet.

For your attention:

The above data can only be general information. The properties and performance characteristics listed are typical values and do not form part of the product specification. Due to the processing and application conditions beyond our control and the large number of different materials, we recommend that you first carry out your own tests. Therefore, no liability for concrete application results can be derived from the information and notes in this data sheet. With the publication of this edition, all previous technical data sheets become invalid.

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