

Opti-tec 5001 Optical Epoxy Adhesive



Description

Opti-tec 5001 is a two component, very low viscosity optical epoxy with very high optical clarity. It has a long pot life and can be cured at room temperature or at 65°C for 1 hour. Opti-tec 5001 is designed for potting, encapsulation and adhesion of components where high optical clarity, good wetting and low viscosity are important.

Features & Benefits

- High optical clarity with excellent resistance to yellowing
- Clear, water white with a low viscosity of 100 cps
- Room or low temperature cure
- Low fluorescence
- High surface energy and low viscosity allows it to readily wet and wick between surfaces. It develops strong adhesion to most materials used in optics, including metals, ceramics, glass and most plastics
- Good impact and thermal shock resistance with low internal stresses due to low shrinkage on cure
- Cures to a hard, glass-like material which can be polished
- Good chemical and moisture resistance
- Opti-tec 5001 is also available in a translucent white version

Applications

- Optical assembly, optical filters
- Glass bonding
- Plastic fibre optics
- Opto-electronics, photonics
- Potting or encapsulation where high optical clarity is required: thin rock sections, geology samples, relics and artifacts, tissue samples, petrology

Specifications

Typical Properties	
Mix ratio	100:25 resin to hardener
Mixed viscosity	0.1 Pa.s (100 cps) @ 25°C
Colour	Water white
Specific gravity	1.1
Pot life	1 hour @ 23°C (< 25g mix) 2 hours @ 23°C (< 4g mix) Max suggested mix 100g



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Typical Properties

Cured Properties (60 minutes @ 65°C)

Glass transition temperature (Tg)	50°C
Hardness, Shore D	81
Temperature range	-60 to 200°C
CTE	50-60 ppm/°C
Lap shear strength (Al/Al)	3000 N
Optical transmission	>97% @ 300-900 nm
Refractive index	1.54 est.
Glass transition temperature (Tg)	50°C
Hardness, Shore D	81

Cure Schedule

Bondline Temperature	Time
25°C	16-24 hours
65°C	60 mins

Note: Optimal cured properties are achieved by curing at a bondline temperature of 65°C.

Storage and Shelf Life

12 months at 25 +/- 10 °C

Many epoxy resin systems are prone to crystallization as epoxy resin is a super-cooled fluid. This condition may give the product a gritty or grainy appearance (or hazy in clear products). Products in this state will not usually cure to normal and expected properties. In extreme cases it may appear solid and cured. Fluctuating temperatures (within 5 to 50 °C) aggravate this phenomenon. Heating the individual component to 50 to 60 °C while stirring can usually restore products to original state.

Health and Safety

Epoxy resin systems may cause sensitisation by skin contact or inhalation may be corrosive, harmful or toxic. It is therefore strongly recommended that skin and eye contact is avoided by the using of appropriate personal protective equipment such as gloves, safety glasses or goggles and overalls.

Wash any contamination from the skin immediately and thoroughly and do not eat, smoke or drink in the working vicinity. Under normal working conditions a good source of ventilation is adequate, however if the material is heated, or where vapour levels are likely to exceed the occupational exposure limits appropriate respiratory protection must be worn.

Local exhaust ventilation (LEV) may be required especially for curing ovens or where large volumes of material are curing.

The above is given as a guide only; please refer to IRS2012-1 safety data sheet individual/specific advice.

Useful Resources

[Product webpage](#)

Warranty

Statements, technical information and recommendations contained herein are based on tests we believe to be reliable but they are not to be construed in any manner as warranties expressed or implied. The user shall determine the suitability of the product for his intended use and the user assumes all risk and liability whatsoever in connection therewith.