

Opti-tec 5006-1

Optically Clear ISO 10993 Epoxy Adhesive

Description

Opti-tec 5006-1 Optically Clear ISO 10993 Epoxy Adhesive is a two-component, medium viscosity epoxy with high optical clarity. It has a fast room temperature cure, which can be accelerated by heating. Opti-tec 5006-1 is designed for potting, encapsulation and adhesion of components where high optical clarity, good wetting and medium viscosity are important.

Opti-tec 5006-1 can be used for bonding glass, quartz, metal and many plastics. It has been certified as non-cytotoxic, and may be considered for use in the manufacture of medical devices.



Features & Benefits

- Optically clear, with excellent resistance to yellowing
- Medium viscosity of 5,000-10,000 cps
- Fast cure at room or low temperature, and reaches handling strength in 30 minutes; full cure can be achieved in 10 minutes at 65°C
- Non-cytotoxic when cured
- Meets ISO 10993-5 Elution Test
- High surface energy allows Opti-tec 5006-1 to wet and wick between surfaces
- Develops strong adhesion to most materials used in optics, including metals, ceramics, glass and most plastics
- Good impact and thermal shock resistance
- Opti-tec 5006-1 is a hard material after cure and can be polished

Applications

- Optical assembly
- Medical device assembly
- Endoscopes
- Plastic & glass fibre optics

Specifications

Part number change: as of version 4.0, April 2021, the part number of this product changed from Opti-tec 5006 to Opti-tec 5006-1. This is due to an unavoidable change in a formulation component. This change does not affect the product data-sheet specifications. The new formulation has passed internal testing and is deemed to be equivalent.

Typical Properties

Mix ratio	1:1 resin to hardener
Mixed viscosity	5-10 Pa.s (5,000-10,000 cps)
Colour	Clear, water white



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Typical Properties

Specific gravity	1.20
Pot life	5 minutes @ 23°C (2 gram mix) Recommended maximum application 2 grams Larger quantities may lead to exothermic reactions which may have undesired effects

Cured Properties (24 hours @ 23°C)

Hardness, Shore D	70
Temperature range	-60 to 125°C
CTE	55 ppm/°C
Lap shear strength (Al/Al)	8 MPa
Refractive index	1.54
Shrinkage on cure	3%
Shelf life	12 months from date of manufacture in original sealed containers

Cure Schedule

Bondline Temperature	Time
23°C	2 hours
65°C	10 mins

Cure time will depend on cross sectional area, ambient conditions, and mixing method. The above data is given as a guide only. Hotter temperatures may be used for faster cure but will result in higher post cure shrinkage and higher cure exotherm. Experimentation and testing is suggested to avoid side effects.

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.