

## Opti-tec 5054-T High Temperature Epoxy Adhesive



### Description

Opti-tec™ 5054-T is a two component, thixotropic, heat curing epoxy. It is formulated for very high temperature resistance and can operate up to 350°C for short periods. Its structure gives the material outstanding environmental resistance including super heated steam at 135°C. Opti-tec 5054-T high temperature epoxy adhesive finds applications in fibre optics where superior thermal and environmental resistance is required. With a simple 1:1 mix ratio, it is supplied in a convenient side-by-side double syringe cartridge, complete with static mixing nozzles.

Opti-tec 5054-T is a high viscosity version of Opti-tec 5054.

### Features & Benefits

- Can withstand high temperature steam autoclaving and operate for short periods up to 350°C
- Very long pot life of 12 hours after mixing
- High surface energy allowing it to readily wet glass optical fibres. It develops strong adhesion to most materials used in fibre optics and optics, including metals, ceramics, glass and most plastics.
- Low shrinkage on cure, which reduces internal stresses within the bond
- Excellent impact and thermal shock resistance, with low internal stresses
- High glass transition temperature results in excellent high temperature performance and creep resistance
- Very high resistance to moisture, vapours and most chemicals.
- Low outgassing and low vapour pressure – ideal sealing material for electronic and optical applications
- May be gelled at 80°C prior to full cure

### Applications

- High temperature, high performance bonding and sealing
- Endoscope manufacture and repair
- Electronics repair

### Specifications

Typical Properties	
Mix ratio	1:1 resin to hardener
Mixed viscosity	15,000 mPa.s (15,000 cps)
Colour	Amber
Pot life	12 hours @ 23°C (4g mixed)



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## Typical Properties

### Cured Properties (15 minutes @ 150°C)

Glass transition temperature (T <sub>g</sub> )	>140°C
Density	1.25
Hardness, Shore D	92
Temperature range	-60 to 250°C
Modulus	2 GPa
Shrinkage on cure	<3.5%
CTE	55 ppm/°C
Shelf life	12 months in original sealed containers

## Cure Schedule

Bondline Temperature	Time
80°C	2 hours – pre-cure gel (optional)
135°C	30 mins
150°C	15 mins

Note: Optimal cured properties are achieved by curing for 15 minutes at a bondline temperature of 150°C. Whilst lower cure temperatures are quoted, they are not recommended for best performance.

## 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.