

Opti-tec 5053-F-B

High Temperature Fast Cure Epoxy Adhesive for Fibre Optic Terminating



Description

Opti-tec 5053-F-B is a two-component, low viscosity, heat curing epoxy designed for high-temperature applications. It is especially well suited to fibre optic terminating, where optical fibres are “pot and polished” into connectors or ferrules.

Opti-tec 5053-F-B is an improved and fast cure version of Opti-tec 5053.

Features & Benefits

- High surface energy and low viscosity allows it to readily wet and wick between optical fibres. It develops strong adhesion to most materials used in fibre optics and optics, including metals, ceramics, glass and most plastics.
- High glass transition temperature results in excellent high temperature performance and creep resistance
- Resists moisture, vapours and most chemicals. It features low outgassing and low vapour pressure, making it an ideal sealing material for electronic and optical applications.
- Colour change upon cure, going from clear to deep translucent red.
- Specially formulated to have very low skin sensitivity
- Long pot life and good handling characteristics
- Used for Telcordia GR-326-CORE compliant assemblies (General Requirements for Singlemode Optical Connectors and Jumper Assemblies – formerly Bellcore), where its high Tg and environmental robustness allow the termination to meet the specification. Note: optimal cure schedule required.

Applications

- Fibre optic terminating
- Endoscope manufacture and repair
- Optoelectronics
- High temperature, high performance bonding
- Electronic sealing

Specifications

Part number change: as of version 5.0, April 2021, the part number of this product changed from OPT5053-F-A to OPT5053-F-B. 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.



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Typical Properties

Mix ratio	8:1 resin to hardener
Mix viscosity	500-2,000 cps
Surface tension	42-44 mN/m
Pot life	4 hours @ 23°C

Optimum Cured Properties (5 minutes @ 120°C)

Refractive index	1.55
Glass transition temperature (Tg)	>100°C
Specific gravity	1.15
Hardness, Shore D	85
Temperature range	-60 to 200°C
Modulus of elasticity	1 GPa
CTE	55 ppm/°C Average between 0°C and 100°C

Adhesive Properties

Lap shear (Al/Al)	11 MPa (@ 23°C)
Shelf life	12 months from date of manufacture in original sealed containers

Cure Schedule

Bondline Temperature	Time
85°C	15 mins
105°C	5 mins
125°C	2 mins

Note: Optimal cured properties are achieved by curing for 5 minutes at a bondline temperature of 120°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 OPT 5053-F-B 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.