

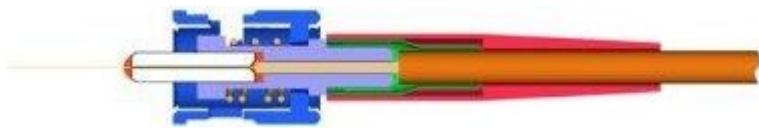
Opti-tec 5054 High Temperature Epoxy Adhesive



Description

Opti-tec™ 5054 high temperature epoxy adhesive is a two component, low viscosity, 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** finds applications in fibre optic terminations where superior thermal and environmental resistance is required. It has passed ISO 10993-5 for medical device applications.

Opti-tec 5054 has a thixotropic, high viscosity version – [Opti-tec 5054-T](#).



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 low viscosity allows it to readily wet and wick between optical fibres
- Strong adhesion to most materials used in fibre optics and optics, including metals, ceramics, glass and most plastics

Opti-tec 5054 High Temperature Epoxy Adhesive



■ Low shrinkage on cure, reducing internal stresses within the bond. It is therefore suitable for multiple fibre assemblies.

- Excellent impact and thermal shock resistance, with low internal stresses
- High glass transition temperature – excellent high temperature performance and creep resistance
- Very high resistance to moisture, vapours and most chemicals
- Low outgassing and low vapour pressure, making it an ideal sealing material for electronic and optical applications
- 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.
- When cured, is considered non-cytotoxic and meets the requirements of the Elution Test, ISO 10993-5. Further ISO 10993 and USP Class VI qualification pending.

Applications

- Fibre optic terminating
- Endoscope manufacture and repair
- Optoelectronics
- High temperature, high performance bonding
- Electronic sealing
- Medical devices and instruments
- Unitising voice coils

Opti-tec 5054 High Temperature Epoxy Adhesive



Specifications

| Typical Properties | | |
|--|---|---|
| Mix ratio | 100:85 resin to hardener | |
| Mixed viscosity | 500 – 1000 cps | |
| Colour | Amber | |
| Surface tension | 40-44 mN/m | |
| Pot life | 12 hours @ 23°C | |
| Cure schedule | Bondline temperature 120°C 150°C | Time 30 minutes 5-10 minutes |
| | Note: Optimal cured properties are achieved by curing for 5 minutes at a bondline temperature of 150°C. Whilst lower cure temperatures are quoted, they are not recommended for best performance. | |
| Cured properties (5 minutes @ 150°C) | | |

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| Typical Properties | | |
|--|---|--|
| Glass transition temperature (T_g) | >140°C | |
| Density | 1.20 | |
| Hardness, Shore D | 92 | |
| Temperature range | -60 to 250°C | |
| Modulus | 2 GPa | |
| Shrinkage on cure | <3.5% | |
| CTE | 55 ppm/°C | |
| Lap shear (Al/Al) | 11 MPa (@ 23°C) | |
| Shelf life | 12 months in original sealed containers | |

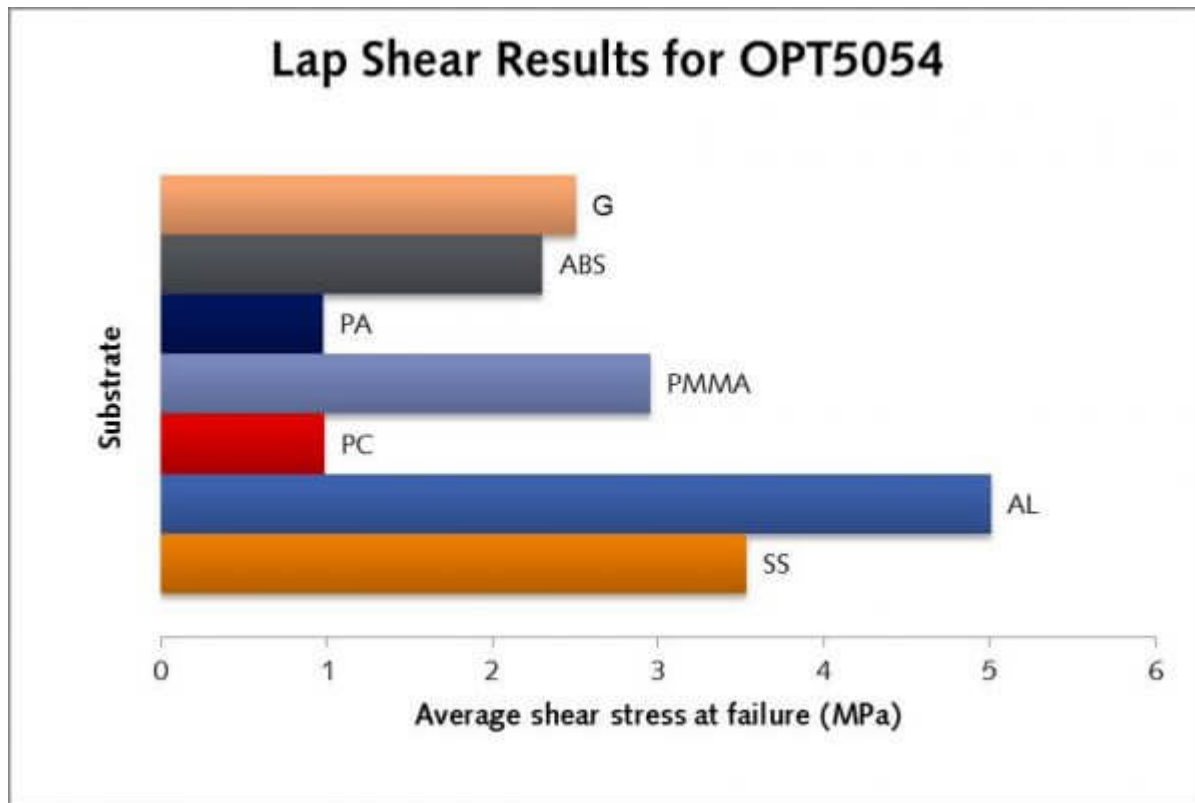
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| Adhesive bonded joints | | Shear stress at failure | |
|------------------------|------------------------|-------------------------|--------------------|
| | | OPT5054 | |
| | | MPa | Mode of failure |
| Material | Stainless steel (SS) | 3.5 | Adhesion |
| | Aluminium 6082 T6 (AL) | 5.0 | Adhesion |
| | Polycarbonate (PC) | 1.0 | Cohesive substrate |
| | PMMA | 3.0 | Cohesive substrate |
| | Nylon 6/6 (PA) | 1.0 | Adhesion |
| | ABS | 2.3 | Cohesive substrate |
| | Glass (G) | 2.5 | Cohesive substrate |

Lap shear results for Opti-tec 5054

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Lap shear results for Opti-tec 5054

Other Information

Opti-tec 5054 High Temperature Epoxy Adhesive



See how **OPT 5054** works as part of a real application in this Adhesive [Case Study](#):

| | |
|---|---|
| <p>CASE STUDY</p> <p>Opti-tec 5054 High temperature epoxy adhesive</p>  <p>Wet winding copper around the coil</p> <p>intertronics adhesives, coatings, sealants & equipment for your manufacturing and technology applications</p>  | <p>Using Opti-tec 5054 to aid in high power and high performance speaker coil assembly processes</p> <p>Speaker coil assembly required a low viscosity adhesive with resistance to high temperatures and extended pot life.</p> |
|---|---|

Ordering Information

Packaging

OPT 5054 is available in twinpacks or in bulk.

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The twinpack sachet is a clear film sachet, with the resin and hardener separated by a removable clip and rail divider. [Click here for twinpack mixing instructions.](#)

Standard twinpack size is 4g total weight. Opti-tec 5054 twinpack sachets are packaged in quantities of 5, sealed into a protective aluminium foil pouch.

| Part number | Description |
|--------------|------------------------|
| OPT5054-4G | 5 x 4 twinpack sachets |
| OPT5054-500G | 500g kit |

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Supplied by:

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Last updated: June 2018 Version: 6.1

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