Opti-tec 5012

Low Viscosity, Clear Epoxy Adhesive / Encapsulant

Description

Opti-tec 5012 is a two component, low viscosity epoxy with very high optical clarity. It has a long pot life and can be cured at room temperature or at 80°C for 90 minutes. Opti-tec 5012 is designed for potting, encapsulation and adhesion of components where high optical clarity, good wetting and low viscosity are important.

Opti-tec 5012 can be used for bonding glass, quartz, metal and many plastics. It finds uses in assembly and repair of glass items where a clear adhesive is required.

Features & Benefits

- High optical clarity, water white with excellent resistance to yellowing
- Excellent transmission down to 300 nm
- Low viscosity (500 cps)
- Long pot life
- Cures within 48 hours at room temperature. Cure can be achieved in 90 minutes at 80°C.
- Opti-tec 5012 has high surface energy. This and its 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
- Opti-tec 5012 is a hard, glass-like material after cure and can be polished
- Good chemical and moisture resistance with a very low exotherm, suitable for sensitive potting and encapsulation applications
- Opti-tec 5012 features low fluorescence

Applications

- Optical assembly, optical filters, lenses, prisms
- Glass bonding
- Plastic & glass fibre optics
- Opto-electronics, photonics, LED
- Optical encapsulation & glob topping, casting, potting
- Repair of glass, wood, ceramic
- Potting or encapsulation where high optical clarity is required: geology samples, relics and artefacts, tissue samples

Contact us for more information about our adhesives and encapsulants
t 01865 842842
e info@intertronics.co.uk
www.intertronics.co.uk

Station Field Industrial Estate
Banbury Road, Kidlington
Oxfordshire, England OX5 1JD

Specifications

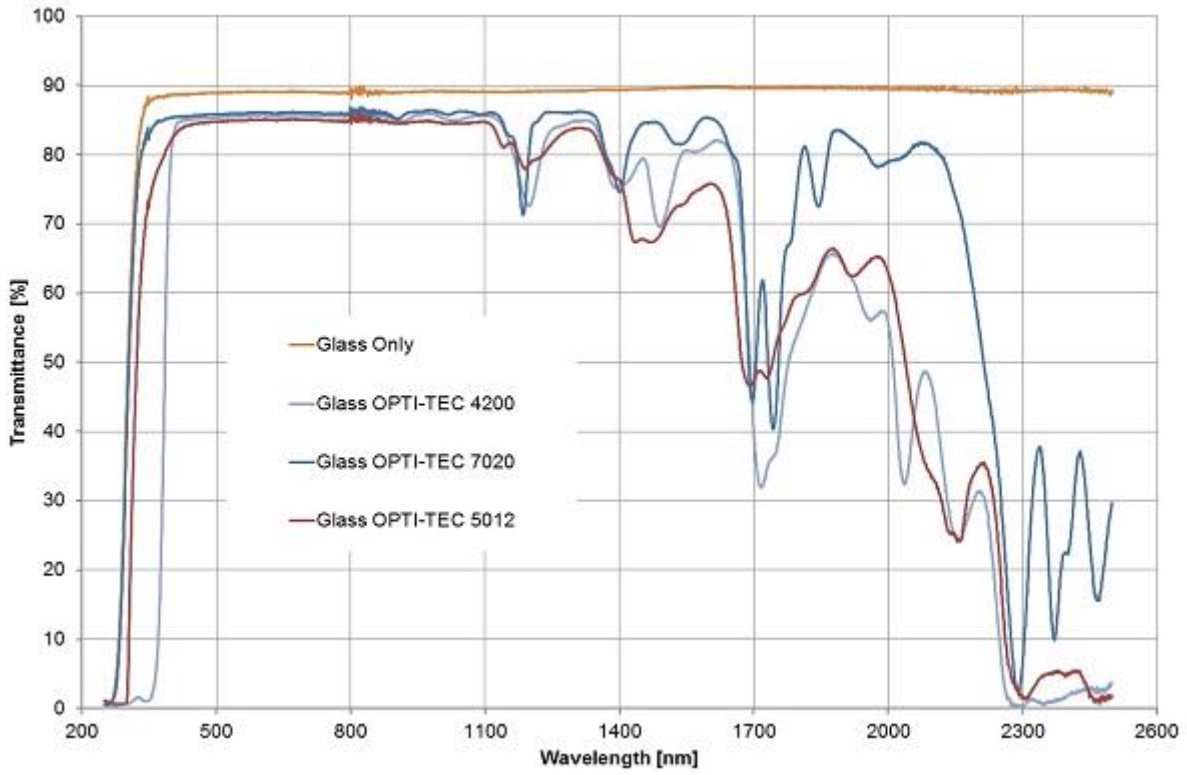
Typical Properties	
Mix ratio	100:35 resin to hardener
Mixed viscosity	0.5-1.0 Pa.s (500-1000 cps) @ 25°C
Colour	Water white
Specific gravity	1.05
Pot life @ 23°C	4 hours (< 25g mix) 8 hours (< 4g mix)
Max suggested mix	100 grams
Cured Properties (90 minutes @ 80°C)	
Glass transition temperature (Tg)	70°C
Hardness, Shore D	82
Temperature range	-60 to 200°C
CTE	50-60 ppm/°C
Lap shear strength (Al/Al)	3000 N
Optical transmission	>97% @ 300-900 nm; excellent to 2500 nm
Refractive index	1.56 est.
Dielectric strength	20kV/mm est.
Dielectric constant	3.1 est.
Volume resistivity	$>10^{14}$ est.
Shelf life	12 months in original sealed containers

Cure Schedule

Bondline Temperature	**Time**
25°C	48 hours
80°C	90 mins

Note: Optimal cured properties are achieved by curing at a bondline temperature of 80°C.

Optical transmission of Opti-tec 4200, Opti-tec 7020, Opti-tec 5012



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 5012 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 warrantees 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.