

Opti-tec 4220 Semi-opaque, Translucent Polyurethane Encapsulant for Electronics and LED Potting



Description

Opti-tec™ 4220 is a two-part, flexible, room temperature curing polyurethane resin, designed for potting, encapsulation and protection of LED arrays and other lighting products. **Opti-tec 4220** cures to form a semi-opaque, milky, translucent material (opalescent) which still allows a high transmission of light. It provides aesthetically pleasing encapsulation, hiding underlying electronics and providing a diffuse light. The material is suitable for outdoor use, with excellent weathering properties; it is formulated with UV resistant materials and includes UV stabilisers.



The opalescent properties of Opti-tec 4220 compared to Opti-tec 4200 in cured samples

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Opti-tec 4220 can be used to encapsulate LED uplights

Features & Benefits

- Cures to form milky, opalescent plastic
- Conceals electronics whilst giving high light transmission
- Can be used outdoors – excellent long term UV stability and weather resistance
- Scratch and mark resistant
- Low viscosity – easy to mix and process

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- High mechanical strength
- Non-toxic

Applications

- Potting of LED lighting projects, including LED tracks, arrays, luminaires
- Protection of electronics located outside or walked on; uplighters
- Decorative lighting
- Optical instruments

Specifications

	Resin	Hardener	Mixed
Colour	Clear	Clear	Translucent milky-white (when cured)
Specific gravity (g/ml)	1.04	1.16	1.10
Viscosity mPa.s @ 25°C	600	600	600

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	Resin	Hardener	Mixed
Mix ratio by weight	0.90:1		
Mix ratio by volume	1.00:1		
Curing (typical values – will vary according to mass and application. Higher cure temperatures will result in greater cure shrinkage and exotherm)			
Pot life (150g mix @ 20-25°C)	20 minutes		
Gel time (150g mix @ 20-25°C)	30 minutes		
Light handling	24 hours @ 20-25°C 12 hours @ 40°C 6 hours @ 60°C		
Full cure	48 hours @ 20-25°C 24 hours @ 40°C 12 hours @ 60°C		
Cured properties			
Water absorption	0.87% (30 days @ 25°C)		
Shore D hardness	30		

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	Resin	Hardener	Mixed
Operating temperature (application & geometry dependant)	-55 to +120°C		
Thermal conductivity	0.25 W/mK		
Tensile strength	46 mPa		
Elongation at break	2-4%		
Compressive yield strength	60 mPa		
Coefficient of linear expansion	60-80 pp/m°C		
Volume resistivity	1.3×10^{13} ohm.cm		
Surface resistivity	1.4×10^{12} ohm		
Electric strength	20 kV/mm		
Opti-tec 4220 is RoHS compliant and contains 0% REACH SVHC			

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Ordering Information

Opti-tec 4220 is available in bulk, twinpacks and cartridges.

Part number	Description
OPT4220-50G	Semi-Opaque Polyurethane Encapsulant – 50 gram double syringe cartridge
<u>IDM805001</u>	Syringe Gun – for 50g cartridges
OPT4220-250G	Semi-Opaque Polyurethane Encapsulant – 250 gram twinpack sachet
OPT4220-2KG	Semi-Opaque Polyurethane Encapsulant – 2 kg bulk kit

For the best results, store in conditions that aren't humid and store away from strong bases, strong acids, strong oxidising agents, strong reducing agents, water, amines and alcohols. Keep in the original packaging and store in a cool, well-ventilated area. Keep container tightly closed.

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