

OP 685-5

UV Resistant Optoelectronic Epoxy

Description

OP 685-5 is a clear, water-white UV resistant epoxy system suitable for encapsulation of high performance optoelectronic devices like indicator lamps and PLCC. This system is cured with anhydride hardeners. It is recommended for encapsulation of LED chips and components, bonding of electronic parts, most plastics, ceramics and metals. This epoxy system contains multifunctional resins which gives excellent performances in temperature cycling, high temperature storage, high humidity storage, minimal light output degradation, and outdoor weathering. It is enhanced for maximum resistance to moisture absorption, crack resistance from thermo-mechanical stresses, high temperature

degradation and increased adhesion to most substrates. It is specially improved to provide excellent resistance to UV and thermal yellowing.

Applications

1. Encapsulation of high performance LED lamps and PLCC devices.

Properties

Property	Unit	Typical Value		
		Part A Resin	Part B Hardener	Mixed
Chemical type		Epoxy	Anhydride	
Appearance		Blue liquid	Yellow Liquid	
Mix ratio, by weight		1.0 ± 0.02	1.0 ± 0.02	
Shelf life, 25°C	Month	12	12	
Pot life, 25°C	Hour			2
Viscosity, CAP 2000+ Viscometer, 25°C	cP	900	500	1260
Specific gravity, 25°C		1.10	1.20	1.15
Refractive index, 25°C		1.495	1.48	1.487
Hardness	Shore D			87
Glass Transition Temperature	°C			150
Transmittance	%			90
Tg, DSC	°C			135-155
CTE α1 (20 - 60°C) α2 (160 - 190°C)	ppm/K			71 182
Storage Modulus, DMA	MPa@25°C			1540

Recommended Cure

Schedule	Temp.	Cure Time
Pre cure	120°C	2 hr
Post cure	150°C	2 hr

Guidelines for Use

1. Agitate the Part A resin and Part B hardener in their original bottles before use. Either of these parts may crystallize on storage at low temperatures. However, warming and stirring of these individual parts at 70°C will ensure homogeneity.
2. Remove the air bubbles in the epoxy mix by vacuum degas at 0.001 mbar (0.1Pa) for 20 minutes.

3. For PLCC, preheat the PLCC lead frame at 150°C for 1 hour. Then dispense the epoxy into the PLCC lead frame.
4. Cure the epoxy at 120°C for 2 hours. Further cure the epoxy at 150°C for 2 hours.
5. Wear rubber gloves when handling epoxy resins and epoxy hardeners.
6. Wipe off any uncured epoxy spillage with tissue or dry cloth. Further cleaning may be achieved with tissue wetted with iso-propanol.

Storage

Store both Part A resin and Part B hardener in a cool, dark place to prolong shelf life. They must be kept away from sunlight and bright room lights.

Part B is moisture sensitive.
Close the seal and cap of the
bottle tightly immediately after
use.

Packaging

250 g plastic bottle
1 kg plastic bottle 5
kg plastic bottle

Environment, Health & Safety

This product is RoHS compliant.
It does not contain any known
carcinogenic, mutagenic or
teratogenic component.

Contact Information

Penchem TechnologiesSdnBhd
(767120-A),1015, Jalan
Perindustrian Bukit Minyak
7,14100 Penang, Malaysia
T: +604-5015976,77,78
F: +604-5015979
E: penchem@tm.net.my
W: www.penchem.com

Revision 3: 11-Jan-16.LPH