



Kisco Conformal Coating, LLC and UNIGLOBE KISCO, Inc

The standard in LED materials

Introduction

Company Overview

- Global Network
- LED Materials by Kisco

Encapsulant Materials

Quantum Dots

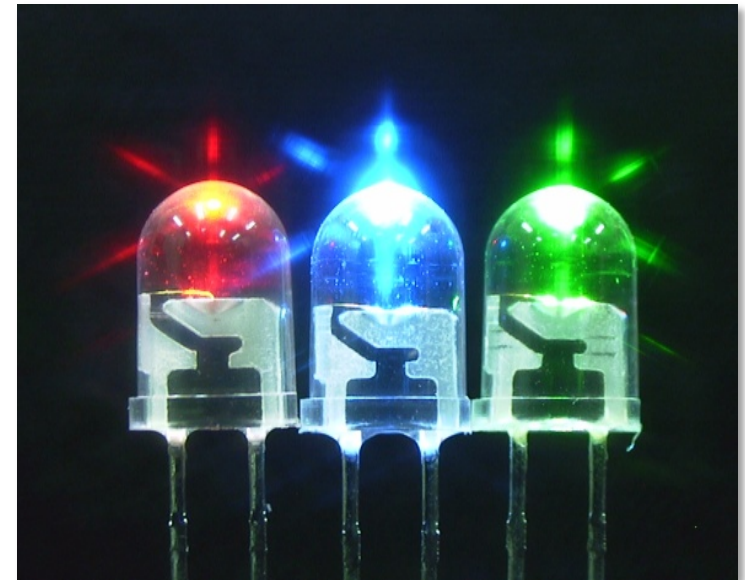
LED Silicone Lenses

diX Parylene

- Key Features of parylene
- Coating Process
- Parylene Materials
- Kisco's Coating Service

LED Applications

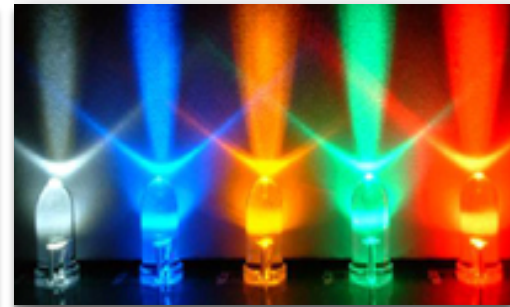
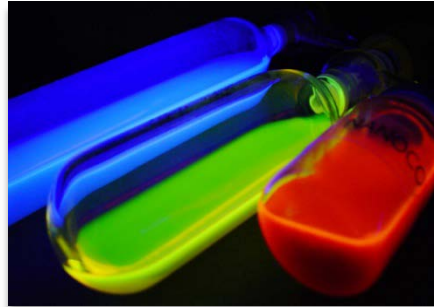
Technical Data



LED Materials by Kisco

→ Products produced by Kisco

→ Products distributed by Kisco

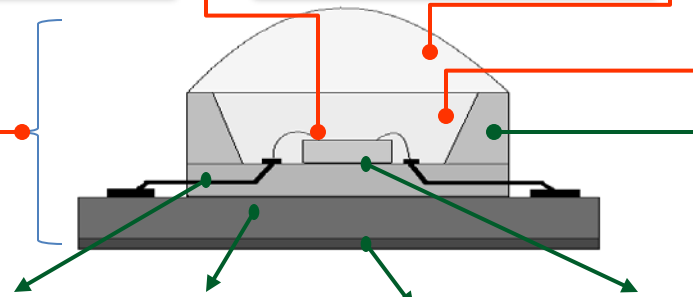


diX
Parylene Coating
 Parylene offers excellent gas and moisture barrier properties to resist corrosion and extend the lifespan of LEDs. This RoHS compliant micron scale CVD coating is light weight, highly transparent, and has a low refractive index.

Quantum dots
 A phosphor alternative nanotechnology

Silicone lens
 Precision molded lenses for various LED applications.

EpiFine
Encapsulation materials
 This silicon modified epoxy can endure high reflow temperatures and maintains its clarity overtime. It also offers better flexibility and UV resistance than conventional resins.



lead frame



mounting board



high thermal conductivity materials



die-attach materials



Reflector



EpiFine

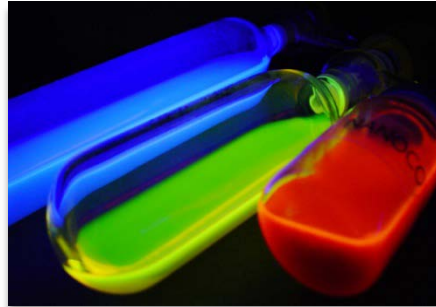
Encapsulation Material

Superior LED protection

LED Materials by Kisco

→ Products produced by Kisco

→ Products distributed by Kisco



diX Parylene Coating

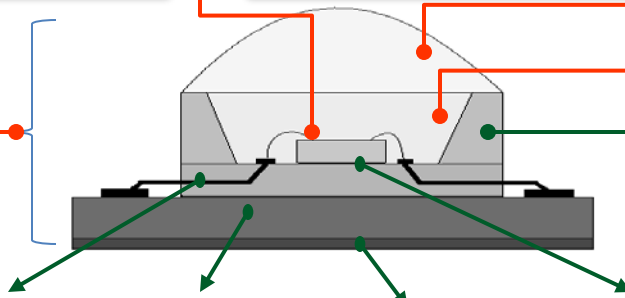
Parylene offers excellent gas and moisture barrier properties to resist corrosion and extend the lifespan of LEDs. This RoHS compliant micron scale CVD coating is light weight, highly transparent, and has a low refractive index.

Quantum dots
A phosphor alternative nanotechnology

Silicone lens
Precision molded lenses for various LED applications.

EpiFine Encapsulation materials

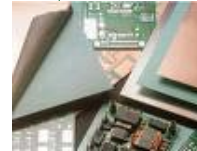
This silicon modified epoxy can endure high reflow temperatures and maintains its clarity overtime. It also offers better flexibility and UV resistance than conventional resins.



lead frame



mounting board



high thermal conductivity materials



die-attach materials



Reflector

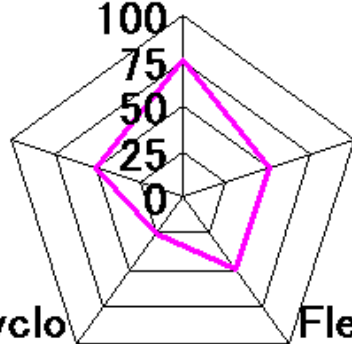
EpiFine Encapsulant

Silicone or an Epoxy resin is often used as an encapsulation material to protect the die of the LED. Our EpiFine material is a silicone modified epoxy, which offers some of the benefits of both.

Conventional Epoxy Resin



High-Temperature Resistance



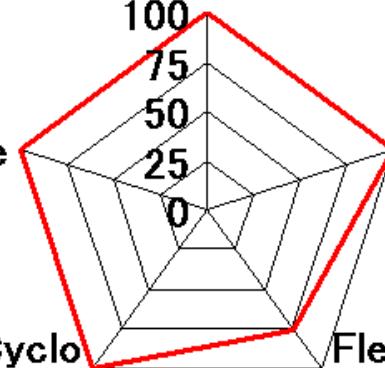
Inexpensive

UV Resistance

Volume of Cyclo Type Epoxy

Flexibility (Low-Stress)

High-Temperature Resistance



Inexpensive

UV Resistance

Volume of Cyclo Type Epoxy

Flexibility (Low-Stress)

EpiFine Encapsulant

UV Resistance

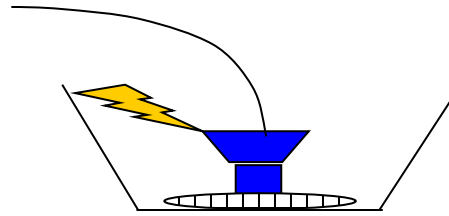
Flexibility – Heat shock resistance

Solder Reflow Heat Resistance

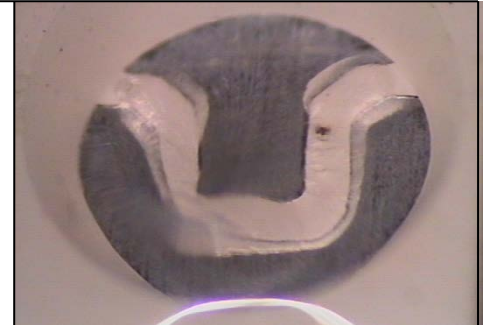
Conventional Epoxy Resin



Discoloration after 500 hours

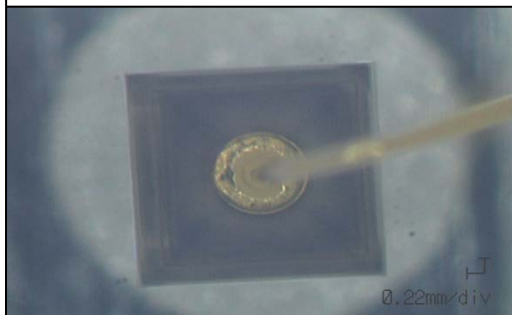


Peeling after 100 cycles of $-40^{\circ}\text{C} \times 30\text{min} \leftrightarrow 110^{\circ}\text{C} \times 30\text{min}$

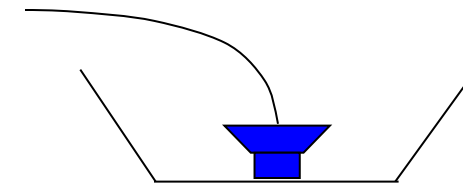


Peeling and cracking after 24 hours

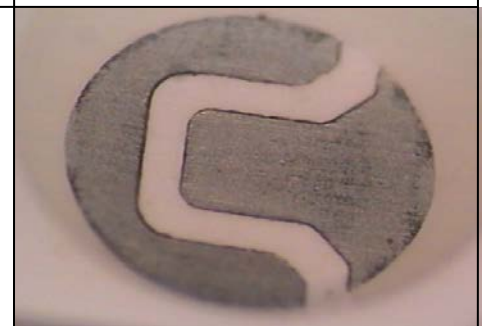
EpiFine



Over 1000 hours with no discoloration



No peeling after 100 cycles of $-40^{\circ}\text{C} \times 30\text{min} \leftrightarrow 110^{\circ}\text{C} \times 30\text{min}$

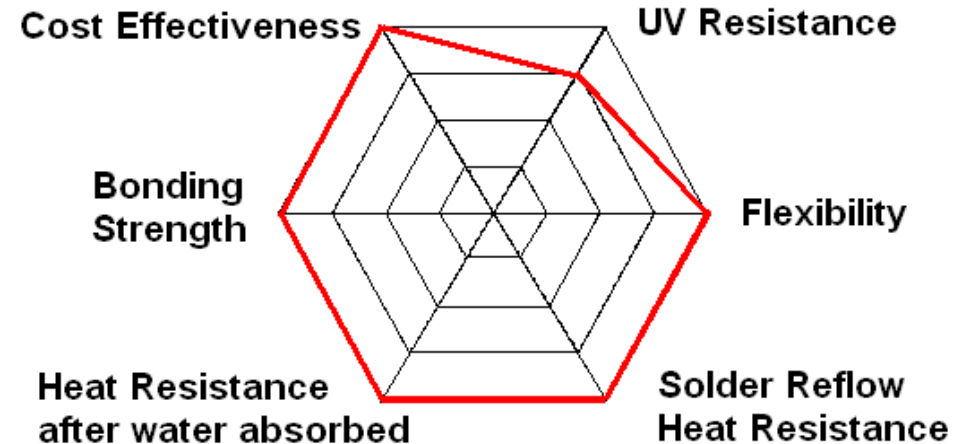
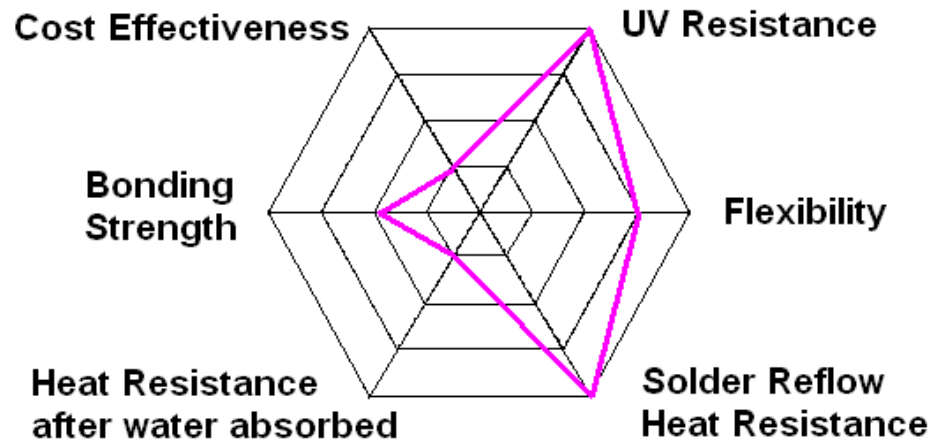


Lasts 24 hours without peeling

EpiFine Encapsulant

Silicone

EpiFine



Applications:

- LED Die bonding
- Die coating for LED
- Potting for LED modules
- Attachment for LED lens



Quantum Dots

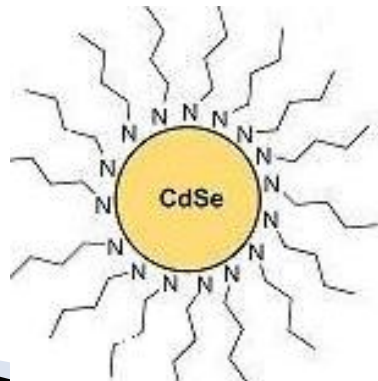
The Nano particle alternative to Phosphors

Quantum Dots



When excited by UV light, these nano-sized particles emit light of a specific wavelength.

- High efficiency phosphor alternative.
- High CRI
- Ideal for LED Backlighting
- Cd-free quantum dots also available.



Single Chip LED		
I) Blue LED + Yellow phosphor	II) Near-UV LED + RGB Phosphor	III) UV LED + Quantum Dots
Blue tinged white Ra about 80	Bright white Ra more than 90	Bright white Infinitely adjustable
<ul style="list-style-type: none"> • Mainstream method • Good reliability • Color dispersion depends on the amount of YAG. 	<ul style="list-style-type: none"> • Less efficiency of Red phosphor • Rarely used practically • Need lifetime improvement 	<ul style="list-style-type: none"> • Adjustable color gamut • Able to match LED color filters for efficient ultra bright LCD backlighting