

OptiCLEAR™ Liquid Encapsulant Fill

SF502A

Polysciences, Inc. *OptiCLEAR™* liquid encapsulant is a new generation of low modulus fill material specifically designed to offer efficient light transmission and low cure stress. Polysciences' *OptiCLEAR™* encapsulant is a novel 100% solids, one component, unfilled, liquid encapsulant designed for encapsulation of semiconductor devices requiring high toughness and strong adhesion to various substrates such as metal, ceramic and organic. This new low modulus adhesive is perfect for glass attach applications like CCD or CMOS.

Customer Benefits

OptiCLEAR™ liquid encapsulant offers the following distinct advantages over anhydride-based epoxy systems:

- JEDEC 1 260°C capable in thin bondline glass attach applications
- Highly efficient transmission of incident light and very little change after exposure to high heat
- Enhanced stress management through the ability to achieve low modulus
- Efficient material utilization resulting from extended pot life at room temperature
- Contamination free processing due to very low cure volatiles

Uncured (Wet) Properties

Color

"Water" clear

Viscosity @ 25°C RVDV-II+, 14/6R, 10 rpm
4700 cps

Specific Gravity
1.07

Pot Life @ 25°C
> 6 months

Storage Life
> 6 months @ 25°C

Process Parameters

Cure Cycle:

UVA (320-400nm) @ 7.5 J/cm² (May vary slightly depending on thickness of encapsulant)

Alternate Cure Cycle

2 hours @ 120°C plus 2 hours @ 150°C
Temperature ramp rate should not exceed
10°C per minute

Weight Loss at Cure
0.1%

Cured Properties

Glass Transition Temperature (T_g) by DMA
40°C

Coefficient of Thermal Expansion (CTE)
200 ppm/ °C

Modulus (Three Point Bend)
150 - 200 M Pa @ 25°C

Moisture Absorption after 1000 hrs 85°C/85% RH
<2.0%

Thermal Stability (% weight loss)
1.4% @ 300°C

Extractable Ionic Content (Na, K, Cl)
< 20 ppm

Dielectric Strength v/mil @ 1/16"
426

Dielectric Constant @ 1MHz
3.41

Volume Resistivity ohm-cm @ 23°C
3 x 10¹⁴

Refractive Index
1.54

Storage and Handling

Shipment

Keep product at room temperature

Storage

Store at room temperature

Safety

Normal safety precautions for epoxy resins should be observed. Refer to MSDS for details.

All values are considered typical based on tests believed to be accurate. Polysciences, Inc. may change the data as appropriate.

Ordering Information

In The U.S. Call: 1-800-523-2575 • 215-343-6484

In The U.S. Fax: 1-800-343-3291 • 215-343-0214

In Europe Call: (49) 6221-756767

In Europe Fax: (49) 6221-764620