

# *OptiCLEAR™ Liquid Encapsulant Fill*

## *SF5011*

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.

### Customer Benefits

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

- 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+, Spindle 21, 0.5 rpm  
95,000 cps

Specific Gravity  
~1.07

Pot Life @ 25°C  
> 6 months

Storage Life  
> 6 months @ 25°C

### Process Parameters

#### 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  
TBD

### Cured Properties

Glass Transition Temperature (Tg) by DMA  
20°C

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

Modulus (Three Point Bend)  
12 - 17 M Pa @ 25°C

Shear Strength (3.3 x 3.3 mm die on ceramic substrate)  
>9kg (failure mode is cohesive)

Moisture Absorption after 96 hrs 85°C/85% RH  
0.9%

Thermal Stability (% weight loss)  
0.8% @ 300°C

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

Dielectric Strength v/mil @ 1/16"  
TBD

Dielectric Constant @ 1MHz  
TBD

Volume Resistivity ohm-cm @ 23°C  
TBD

Refractive Index  
TBD

### Storage and Handling

#### Shipment

Keep product 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