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LOCTITE

Technical Data Sheet

LOCTITE ECCOBOND FP4450

September 2013

PRODUCT DESCRIPTION

LOCTITE ECCOBOND FP4450 provides the following product characteristics:

Technology	Epoxy
Appearance	Black
Product Benefits	• High purity • Low stress • Good moisture resistance • Exhibits relatively high flow • High temperature performance • Excellent chemical resistance
Filler Weight, %	73
Cure	Heat cure
Application	Encapsulant
Operating Temperature	-65 to 150 °C
Typical Package Application	• Automotive applications • BGA • IC memory cards • Chip carriers • Hybrid circuits • Chip-on-board • Multi-chip modules • Pin grid arrays

LOCTITE ECCOBOND FP4450 encapsulant is designed for protection of bare semiconductor devices. It offers pressure pot performance on live devices up to 500 hours with no failures, depending upon the device and package type. A cavity or potting dam is required for flow control.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Viscosity, Brookfield - RVT, 25 °C, cps:	
Spindle 7, speed 20 rpm	43,900
Specific Gravity @ 25 °C	1.77
Pot life @ 25°C, days	3
Gel Time @ 121ºC, minutes	12
Shelf Life @ -40°C, days	274

Flash Point - See SDS

TYPICAL CURING PERFORMANCE

Recommended Cure Schedule

30 minutes @ 125°C plus
90 minutes @ 165°C

Alternate Cure Schedule

1 hour @ 165°C

The above cure profile is a guideline recommendation. Cure conditions (time and temperature) may vary based on customers' experience and their application requirements, as well as customer curing equipment, oven loading and actual oven temperatures.

TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties :

Coefficient of Thermal Expansion , ppm/°C:	
Below Tg (40 to 120°C)	22
Glass Transition Temperature (Tg) by TMA, °C	155
Alpha Particle Emissions, cts/cm² /hr	0.005
Extractable Ionic Content, ppm:	
Chloride (Cl-)	5
Sodium (Na+)	1
Potassium (K+)	2

GENERAL INFORMATION

For safe handling information on this product, consult the Safety Data Sheet, (SDS).

Not for product specifications

The technical data contained herein are intended as reference only. Please contact your local quality department for assistance and recommendations on specifications for this product.

THAWING:

1. Allow container to reach room temperature before use.
2. DO NOT open the container before contents reach 25°C temperature. Any moisture that collects on the thawed container should be removed prior to opening the container.
3. DO NOT re-freeze. Once thawed, the adhesive should not be re-frozen.

DIRECTIONS FOR USE

1. For best results, dispense onto substrate warmed to 80°C.

STORAGE:

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

Optimal Storage: -40 °C. Storage below minus (-)40 °C or greater than minus (-)40 °C can adversely affect product properties.

Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel Corporation cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Technical Service Center or Customer Service Representative.

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Conversions
(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
N x 0.225 = lb
N/mm x 5.71 = lb/in
psi x 145 = N/mm²
MPa = N/mm²
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

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Reference N/A