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LOCTITE

Technical Data Sheet

LOCTITE ECCOBOND FP4651

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PRODUCT DESCRIPTION

LOCTITE ECCOBOND FP4651 provides the following product characteristics:

Technology	Epoxy
Appearance	Black
Product Benefits	• High purity • Self-leveling • Excellent chemical resistance • High thermal stability • Low thermal expansion • Low viscosity
Components	One-component
Filler content , % ignition	82
Cure	Heat cure
Application	Encapsulant
Typical Applications	Cavity-fill and fine wire pitch applications

LOCTITE ECCOBOND FP4651 epoxy encapsulant features very low thermal expansion while retaining syringe dispense capabilities. Its low viscosity and 50 micron maximum particle size gives it improved handling properties over FP4650 for fine wire pitch and cavity-fill applications. It is based on FP4450 resin chemistry, therefore exhibiting excellent chemical resistance and thermal stability properties.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Viscosity, Brookfield - RVF, 25 °C, mPa·s (cP):	
Spindle 7, speed 20 rpm	130,000
Specific Gravity	1.91
Pot life @ 25°C, days:	
(Time required to double viscosity)	2
Gel Time @ 121 °C, minutes	9
Shelf Life @ -40°C, months	9
Flash Point - See SDS	

TYPICAL CURING PERFORMANCE

Recommended Cure Schedule

1 hour @ 125°C plus
90 minutes @ 165°C

Alternate Cure Schedule

2 hours @ 110°C plus
3 hours @ 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)	11
Above Tg (190 to 220°C)	50
Glass Transition Temperature (Tg), °C	150
Extractable Ionic Content, ppm:	
Chloride (Cl-)	5
Potassium (K+)	1
Sodium (Na+)	1

GENERAL INFORMATION

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

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected as a sealant for chlorine or other strong oxidizing materials.

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. Frozen packages must be completely thawed before use.
2. Store tip down and warm at room temperature until no longer cool to the touch (normally 20 to 60 minutes).
3. DO NOT thaw in an oven.

Directions for use

1. LOCTITE ECCOBOND FP4651 should be dispensed onto a substrate warmed to approximately 80°C. This will help minimize air entrapment.
2. Warm LOCTITE ECCOBOND FP4651 to 30 to 40°C for faster dispensing.
3. **NOTE:** Elevated temperatures reduce working life.

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

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

Disclaimer

Note:
The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product.
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Reference 1