Technical Data Sheet

LOCTITE ECCOBOND FP6101

November 2016

PRODUCT DESCRIPTION

LOCTITE ECCOBOND FP6101 provides the following product characteristics:

Technology	Epoxy
Appearance	Black
Product Benefits	• Reworkable • High flow • High adhesion to flexible and rigid substrates • Low modulus • Low stress
Components	One-component
Cure	Heat cure
Application	CSP/BGA Underfill

LOCTITE ECCOBOND FP6101 is an unfilled flexible epoxy designed as a removable CSP or BGA underfill. When fully cured, LOCTITE ECCOBOND FP6101 forms a low modulus, low stress seal that dissipates impact stresses on solder joints and circuit boards.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Viscosity, Brookfield - Cone & Plate, 25 °C, mPa·s (cP):	
Spindle 52, speed 20 rpm	3,700
Specific Gravity	1.18
Pot Life @ 25 °C (time to double viscosity), weeks	2
Gel Time @ 121ºC, minutes	12
Shelf Life:	
@ -40ºC, days	274
@ -20ºC, days	183
@ -10ºC, days	122

Flash Point - See SDS

TYPICAL CURING PERFORMANCE

Recommended Cure Schedule

5 to 10 minutes @ 150°C

Alternate Cure Schedule

5 minutes @ 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 (-30 to -10°C)	80
Above Tg (60 to 120°C)	210
Glass Transition Temperature (Tg), °C	15
Coefficient of Thermal Conductivity, ISO 8302, W/(m-K)	0.21
Young's modulus (E) MPa	15
Extractable Ionic Content, ppm:	
Chloride (Cl-)	<5
Potassium (K+)	<1
Sodium (Na+)	<5
Water Absorption, ISO 62, %:	
2 hours boil	<2
24 hours in RT immersion,%	<1
Shore Hardness, Shore D	46
Elongation ,%	102
Shrinkage, %	<2

Electrical Properties:

Dielectric Constant / Dissipation Factor, IEC 60250:	
@ 25 °C:	
1kHz	4.4 / 0.05
10 kHz	4.1 / 0.05
100 kHz	3.8 / 0.05
Volume Resistivity, IEC 60093, Ω·cm	1.4×10^{14}
Surface Resistivity, IEC 60093, Ω	6.3×10^{15}

TYPICAL PERFORMANCE OF CURED MATERIAL

Lap Shear Strength :		
	N/mm²	10
	(psi)	(1,450)

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 30 minutes).
3. DO NOT thaw in an oven.

Directions for use

1. Devices with wet encapsulant should not be exposed to humidity in the air and should be promptly post-cured according to suggested cure to achieve full properties.
2. If the material cannot be initially gelled to a hard finish within 1 hour after dispensing, storage in desiccator cabinet is suggested until full curing is possible.

Removal Procedure

1. Heat component to 220°C using direct and/or hot gasses.
2. Shear or lift component to remove.
3. Apply heat and flux to soften underfill and solder.
4. No additional redressing is necessary.
5. Continue rework process with application of new part.

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

Optimal Storage : ≤-10 °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.

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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