Technical Data Sheet

LOCTITE ECCOBOND XE 1218

October 2014

PRODUCT DESCRIPTION

LOCTITE ECCOBOND XE 1218 provides the following product characteristics:

Technology	Epoxy
Appearance	Black
Cure	Heat cure
Product Benefits	• Reworkable • Snap curable • Fast, void-free underfill of area array devices • Excellent adhesion
Application	Underfill
Typical Package Application	Chip scale packages and BGA

LOCTITE ECCOBOND XE 1218 underfill material is ideal for high volume assembly processes. It is designed to improve adhesion strength of devices during mechanical stress testing while not degrading the thermal cycle performance.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Casson Viscosity (Rheometer) @ 50/sec, cps Stepped flow: 0.6/sec to 200/sec, 10 ppd	1,118
Flow Rate @ 80°C, seconds:	
1 cm travel on Glass@ 200 µm gap	6
Pot Life:	
@ 3ºC, days	30
@ 25ºC, days	10
@ 40ºC, hours	30
Shelf Life @ -20 °C, days	274
Flash Point - See SDS	

TYPICAL CURING PERFORMANCE

Cure Schedule

35 minutes @ 90°C
20 minutes @ 100°C
10 minutes @ 110°C
5 minutes @ 120°C
2 minutes @ 130°C
1 minutes @ 150°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 ASTM D 3386:	
Below Tg, ppm/°C	75
Glass Transition Temperature, ISO 11357-2 (Tg), °C	60
Storage Modulus, DMA , MPa	400
Extractable Ionic Content, ppm:	
Chloride (Cl-)	5
Sodium (Na+)	0
Potassium (K+)	0

Electrical Properties

Volume Resistivity, ohms-cm	4×10^{11}

GENERAL INFORMATION

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

THAWING:

1. After removing from the freezer, set the syringes to stand vertically while thawing.
2. Syringes should thaw a minimum of 90 minutes.

DIRECTIONS FOR USE

1. While it is not essential, the underfill area should be cleaned of contaminants and obstructions to optimize the speed and quality of the underfill.
2. Preheat assembly to between 75°C and 90°C. Higher temperatures reduce underfill times.
3. Dispense a bead of the underfill using a syringe fitted with a 21 gauge needle (or larger) on one (line) or two sides (L-Shape) of the device perimeter.
4. Syringe tip heating is not needed, but can be used.
5. Very large devices may require multiple beads of underfill, but for most no second or 'fillet pass' is required.
6. Because of its low viscosity and outstanding wetting characteristics, LOCTITE ECCOBOND XE 1218 is designed to 'self-fillet' the opposite sides of the device.

Rework Procedure

1. The preferred method is with a non-contact rework machine which minimizes potential damage to the PCB and soldermask.
2. Remove the component from the substrate by using local application of heat onto the component.
3. The recommended heat profile is identical to the profile used during initial assembly.
4. Once the solder has reached temperatures above it's reflow temperatures, lift the component off by using a slight twisting motion.
5. The site should be cleaned, removing any excess underfill and solder remaining on the PCB site.
6. Total time required for component removal is about 5 to 7 minutes.

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.

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

Optimal Storage: -20°C. Storage below -20°C or greater than minus -20°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.

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
N/mm² x 145 = psi
MPa = N/mm²
MPa x 145 = psi
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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