



# XE-1218

August 2010

## PRODUCT DESCRIPTION

XE-1218 provides the following product characteristics:

<b>Technology</b>	Epoxy
<b>Appearance</b>	Black
<b>Cure</b>	Heat cure
<b>Product Benefits</b>	<ul style="list-style-type: none"> <li>• Reworkable</li> <li>• Snap curable</li> <li>• Fast, void-free underfill of area array devices</li> <li>• Excellent adhesion</li> </ul>
<b>Application</b>	Underfill
<b>Typical Package Application</b>	Chip scale packages and BGA

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	1,118
Stepped flow: 0.6/sec to 200/sec, 10 ppd	
Flow Rate @ 80°C, seconds:	
1 cm travel on Glass:	
@ 200 micron gap	6
Pot Life:	
@ 3°C, days	30
@ 25°C, days	10
@ 40°C, hours	30
Shelf Life:	
@ -20°C, months	9
Flash Point - See MSDS	

## TYPICAL CURING PERFORMANCE

### Cure Schedule

Time (minutes)	Temp °C
35	90
20	100
10	110
5	120
2	130
1	150

Time shown does not include ramp-up time to cure temperature.

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 (Tg) , ISO 11357-2, °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 <sup>11</sup>
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## 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, 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 its 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/mm<sup>2</sup> x 145 = psi
- 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

**Note**

The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, **Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits.** The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Henkel Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.

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Reference 0.2