



QMI 538NB-1A1.5

November 2009

PRODUCT DESCRIPTION

QMI 538NB-1A1.5 provides the following product characteristics:

Technology	Epoxy
Appearance	White
Cure	Heat cure
Product Benefits	• Non-conductive • Low viscosity • Reduced resin bleed • Low stress • Uniform bondline control • Extremely low tilt • Hydrophobic • Stable at high temperatures • Void-free bondline • Excellent adhesive strength • SkipCure™
Application	Die attach
Filler Type	PTFE
Substrates	Solder resist, Flexible tape and Bare Silicon
Spacer Size	1.5 mils
Typical Package Application	Stacked die package

QMI 538NB-1A1.5 die attach adhesive contains spacers made of pliable organic material with a low softening temperature which allows the spacers to compress minimally with the paste during the cure process. A package or device using this material will have a high resistance to delamination and popcorning after multiple exposures to Pb-free solder reflow temperatures.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Thixotropic Index (0.5/5 rpm)	5.0
Viscosity, Brookfield CP51, 25 °C, mPa·s (cP):	
Speed 5 rpm	8,200

Work Life @ 25°C, hours	24
Shelf Life @ -40°C (from date of manufacture), year	1
Specific Gravity, g/cc	1.3

TYPICAL CURING PERFORMANCE

SkipCure™

10 seconds @ 175°C

Oven Cure

30 minutes @ 175°C

The above cure profiles are guideline recommendations. 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 TMA:	
Below Tg, ppm/°C	59
Above Tg, ppm/°C	130

Glass Transition Temperature (Tg) by TMA, °C -70

Tensile Modulus, DMTA :	
@ 25 °C	N/mm ² 100 (psi) (14,500)

Extractable Ionic Content, ppm:

Chloride (Cl-)	<20
Sodium (Na+)	<20
Potassium (K+)	<20
Fluoride (F-)	<20

TYPICAL PERFORMANCE OF CURED MATERIAL

Die Shear Strength:

8.0 X 8.0 mm die, kg-f,
1 mil BLT

Substrate	@25°C	275°C
Ceramic	>100	15

GENERAL INFORMATION

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

THAWING:

1. Allow container to reach room temperature before use.
2. After removing from the freezer, set the syringes to stand vertically while thawing.
3. 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.
4. DO NOT re-freeze. Once thawed to -40°C, the adhesive should not be re-frozen.

DIRECTIONS FOR USE

1. Thawed adhesive should be immediately placed on dispense equipment for use.
2. If the adhesive is transferred to a final dispensing reservoir, care must be exercised to avoid entrapment of contaminants and/or air into the adhesive.
3. Adhesive must be completely used within the product's recommended work life.
4. Apply enough adhesive to achieve a 1.5 mil wet bondline thickness, dispensed with approximately 25 to 50 % filleting on all sides of the die.



5. Alternate dispense amounts may be used depending on the application requirements.
6. Star or crossed shaped dispense patterns will yield fewer bondline voids than the matrix style of dispense pattern.

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: -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.

Conversions

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$
 $\text{kV/mm} \times 25.4 = \text{V/mil}$
 $\text{mm} / 25.4 = \text{inches}$
 $\text{N} \times 0.225 = \text{lb}$
 $\text{N/mm} \times 5.71 = \text{lb/in}$
 $\text{N/mm}^2 \times 145 = \text{psi}$
 $\text{MPa} \times 145 = \text{psi}$
 $\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$
 $\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$
 $\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$
 $\text{mPa}\cdot\text{s} = \text{cP}$

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.

Trademark usage

Except as otherwise noted, all trademarks in this document are trademarks of Henkel Corporation in the U.S. and elsewhere. ® denotes a trademark registered in the U.S. Patent and Trademark Office.

Reference 0.2