



# QMI 538NB-1A1.5™

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## PRODUCT DESCRIPTION

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

<b>Technology</b>	Epoxy
<b>Appearance</b>	White
<b>Cure</b>	Heat cure
<b>Product Benefits</b>	<ul style="list-style-type: none"> <li>• Non-conductive</li> <li>• Low viscosity</li> <li>• Reduced resin bleed</li> <li>• Low stress</li> <li>• Uniform bondline control</li> <li>• Extremely low tilt</li> <li>• Hydrophobic</li> <li>• Stable at high temperatures</li> <li>• Void-free bondline</li> <li>• Excellent adhesive strength</li> <li>• SkipCure™</li> </ul>
<b>Application</b>	Die attach
<b>Filler Type</b>	PTFE
<b>Substrates</b>	Solder resist, Flexible tape and Bare Silicon
<b>Spacer Size</b>	1.5µm
<b>Typical Package Application</b>	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 <sup>2</sup> 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 38 µm 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

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Reference 0.1