

LOCTITE ABLESTIK QMI536-1A1.5

December 2016

PRODUCT DESCRIPTION

LOCTITE ABLESTIK QMI536-1A1.5 provides the following product characteristics:

Technology	Bismaleimide Resin
Appearance	White paste
Components	One component - requires no mixing
Product Benefits	<ul style="list-style-type: none"> Hydrophobic Stable at high temperatures Void-free bondline Excellent dielectric properties Excellent interfacial adhesion strength
Cure	Heat cure
Application	Die attach
Key Substrates	Organic substrates, Solder mask, Au, FR, Polyimide and BT substrates
Typical Package Application	PBGA, CSP, Array packages and Stacked die package

LOCTITE ABLESTIK QMI536-1A1.5 is a fluoropolymer filled paste for attachment of integrated circuits and components to advanced substrates and packages.

LOCTITE ABLESTIK QMI536-1A1.5 can be cured in a conventional oven, on a snap cure oven, or utilize SkipCure™ processing on a die bonder or wire bonder. The material is formulated to produce cure onset below 100°C. This can reduce or eliminate the need to pre-dry organic substrates prior to the die attach process.

LOCTITE ABLESTIK QMI536-1A1.5 is the 1.5 mil spacer version of LOCTITE ABLESTIK QMI536 adhesive.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.26
Viscosity @ 25 °C, mPa·s (cP):	
Speed 5 rpm	8,500
Thixotropic Index (Speed 0.5/speed 5)	5.7
Pot Life @ 25 °C, hours	24
Shelf Life @ -40°C, days	365
Flash Point - See SDS	

TYPICAL CURING PERFORMANCE

Recommended Cure Schedule

SkipCure	≥10 @ 150°C
Convection Box Oven	15 minutes @ 150°C

The above thermal compression profile and post cure condition are guideline recommendations. These 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

Extractable Ionic Content, ppm:	
Sodium (Na+)	≤20
Potassium (K+)	≤20
Chloride (Cl-)	≤20
Fluoride (F-)	≤20
Moisture Absorption, 168 hours @ 85°C/85% RH, ≤0.35 wt. %	
Glass Transition Temperature, °C	-31
Coefficient of Thermal Expansion, TMA:	
Alpha 1, ppm/°C	98
Alpha 2, ppm/°C	174
DMA Modulus @ 25°C	GPa 0.3
	(N/mm²) (300)
	(psi) (43,500)
Thermal Conductivity, W/(m·K)	0.3
Alpha Particle Emissions, particles/cm² /hr	0.0007

Electrical Properties

Volume Resistivity, ohm-cm	>1×10 ¹³
Dielectric Constant @ 25°C, 1 MHz	2.6

TYPICAL PERFORMANCE OF CURED MATERIAL

Miscellaneous

Die Shear Strength @ 25°C:	
7.6 x 7.6 mm, 0.0254 mm BLT, Si die on 17 Ag-plated Cu LF, kg-f	

GENERAL INFORMATION

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

Directions for use

Dispensing and Bondline Control:

- LOCTITE ABLESTIK QMI536-1A1.5 adhesion is tested using 150 mil X 150 mil die with 1.5 mil bondline thickness. Since thinner bondlines increase stress and may affect adhesion, please call your nearest Technical service engineer for consultation in cases where bondlines less than 1 are desired
- LOCTITE ABLESTIK QMI536-1A1.5 has excellent rheology and flows easily under shear stresses such as those present during

die bonding. Therefore, bondforces used with other adhesives which produce a certain bondline thickness, may result in thinner bondlines with LOCTITE ABLESTIK QMI536-1A1.5. Optimization of die bonding parameters is strongly recommended to consistently meet target bondline thicknesses.

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

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

Disclaimer

Note:

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product.

Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Belgium NV, Henkel Electronic Materials NV, Henkel Nederland BV, Henkel Technologies France SAS and Henkel France SA please additionally note the following:

In case Henkel would be nevertheless held liable, on whatever legal ground, Henkel's liability will in no event exceed the amount of the concerned delivery.

In case products are delivered by Henkel Colombiana, S.A.S. the following disclaimer is applicable:

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such

suitability of our product.

Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Corporation, Resin Technology Group, Inc., or Henkel Canada, Inc. the following disclaimer is applicable:

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 1