Technical Data Sheet

# 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 | • Hydrophobic<br>• Stable at high temperatures<br>• Void-free bondline<br>• Excellent dielectric properties<br>• 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 @ -40ºC , days | 365 |
| Flash Point - See SDS | |

## TYPICAL CURING PERFORMANCE

**Recommended Cure Schedule**

| | |
|---|---|
| *Skip*Cure | ≥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, wt.% | | ≤0.35 |
| 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 | $>1\times10^{13}$ |
| Dielectric Constant @ 25ºC, 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**
(°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
psi x 145 = N/mm²
MPa = N/mm²
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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