

LOCTITE® ABLESTIK QMI505MT

June 2024

PRODUCT DESCRIPTION

LOCTITE® ABLESTIK QMI505MT provides the following product characteristics:

Technology	Rubberized epoxy
Appearance	Silver
Filler type	Silver
Product benefits	- Electrically conductive - Hydrophobic - Stable at high temperatures - Void-free bondline - Excellent interfacial adhesion strength - Low modulus - Reduces inter-package stress
Cure	Skip-Cure process Oven cure
Application	Die attach
Substrates	SBGA™, QFN and TQFP
Surface finishes	Gold, Silver, Ceramics, Palladium and Alloy 42

LOCTITE® ABLESTIK QMI505MT die attach paste is designed for attachment of integrated circuits and components to advanced metal and ceramic surfaces. A package or device manufactured with LOCTITE® ABLESTIK QMI505MT will have good resistance to delamination and "popcorning" after exposure to reflow temperatures.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Viscosity @ 25°C, mPa·s (cP)

Speed 5 rpm	12,000
Thixotropic index, (0.5/5 rpm)	4.8
Specific gravity @ 25°C	3.42
Pot life @ 25°C, hours	48
Shelf life @ -40°C, months	12
Flash point - see SDS	

TYPICAL CURING PERFORMANCE

Skip-Cure process using die bonder or wire bonder

≥10 seconds @ 200°C at bondline

Alternative cure schedule using conventional oven

15 minutes @ 185°C (may be suitable to QFN applications)
15 minutes @ 200 to 220°C (for higher adhesion)

Weight loss on cure

Cure 15 minutes @ 185°C

By TGA, % 0.79

The above cure profiles are guideline recommendations. These conditions (time and temperature) may vary based on customers' experience and specific 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, ppm/°C:	
Below Tg	72
Above Tg	170
Glass transition temperature, °C	-10
Thermal conductivity, W/(m·K)	2.4
Extractable ionic content, ppm	
Chloride (Cl-)	≤20
Sodium (Na+)	≤20
Potassium (K+)	≤20
Fluoride (F-)	≤20
Moisture absorption, 168 hours @ 85°C/85% RH, %	≤0.2
DMA Modulus @ 25°C, MPa	860

Electrical properties

Volume resistivity, ohms-cm	≤0.002
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TYPICAL PERFORMANCE OF CURED MATERIAL

Die shear strength, @ 25°C, kg-f:	
7.5x7.5 mm, 1 mil BLT, Si die on Ag plated Cu LF	35

GENERAL INFORMATION

Please consult the Safety Data Sheet (SDS) for safe handling information of this product.

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected as a sealant for chlorine or other strong oxidizing materials.

Dispensing

Since thinner bondlines increase stress and may affect adhesion, please call your Henkel Electronics technical service engineer for consultation in cases where bondlines less than 0.0254 mm are desired.

LOCTITE® ABLESTIK QMI505MT as 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 QMI505MT. Optimization of diebonding parameters is strongly recommended to consistently meet target bondline thicknesses.

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 -40°C or above -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 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 Henkel representative.

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 the specifications of this product.

Conversions

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

Disclaimer

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.

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