

LOCTITE ABLESTIK ABP 3533

July 2023

PRODUCT DESCRIPTION

LOCTITE ABLESTIK ABP 3533 provides the following product characteristics:

| | |
|------------------------------------|---|
| Technology | Epoxy |
| Appearance | Silver |
| Product benefits | <ul style="list-style-type: none"> • One component • Good workability • High reliability • Good electrical and thermal conductivity • Good adhesion on non-BSM and BSM die • Low stress • Moderate modulus • Low outgassing |
| Cure | Heat cure |
| Application | Electronic adhesives; Semiconductor pastes |
| Typical package application | SOIC, SOP, QFP and QFN |
| Key substrates | Ag, Cu, PPF |

LOCTITE ABLESTIK ABP 3533 electrically conductive die attach adhesive is formulated for use on high reliability package applications. It provides excellent conductivity to achieve low RDSon in MOSFET electronic devices.

This material is designed with the moderate modulus, good adhesion and low stress, making it suitable for bonding non-BSM (backside metallization) and BSM die, ranging from small to large die sizes.

TYPICAL PROPERTIES OF UNCURED MATERIAL

| | |
|--|------|
| Viscosity, Brookfield CP51 @ 25°C, mPa·s (cP) Speed 5 rpm | 7000 |
| Thixotropic index, (0.5/5 rpm) | 4.0 |
| Work life @ 25°C, hours | 24 |
| Shelf life @ -40°C, days | 365 |

TYPICAL CURING PERFORMANCE

| | |
|-------------------------------------|-----|
| Weight loss, on cure by TGA @ 175°C | 2.7 |
|-------------------------------------|-----|

Recommended cure

30 minutes ramp to 175°C + 60 minutes in N2 or air

Alternate cure

30 minutes ramp to 200°C + 60 minutes in N2 or air

The above cure profile 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 | 90 |
| Above Tg | 213 |
| Glass transition temperature, Tg by TMA, °C | 32 |
| Dynamic tensile modulus (DMA), MPa | |
| @-65°C | 5,950 |
| @25°C | 4,300 |
| @150°C | 130 |
| @200°C | 130 |
| @250°C | 130 |
| Extractable ionic content, ppm | |
| Chloride (Cl-) | ≤20 |
| Sodium (Na+) | ≤10 |
| Potassium (K+) | ≤10 |
| Thermal conductivity, W/mK | 3.8 |

Electrical properties

| | |
|----------------------------|------------------------|
| Volume resistivity, ohm-cm | 1.0 x 10 ⁻⁴ |
|----------------------------|------------------------|

TYPICAL PERFORMANCE OF CURED MATERIAL

Shear strength

| | |
|--------------------------------------|------|
| Die shear strength, 2x2 mm die, kg-f | |
| on Ag leadframe | |
| @RT | 12.0 |
| @260°C | 1.4 |
| on Cu leadframe | |
| @RT | 8.0 |
| @260°C | 1.5 |
| on PPF leadframe | |
| @RT | 10.0 |
| @260°C | 1.3 |

GENERAL INFORMATION

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

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. Thaw times depend on the syringe size.
4. Consult handling guide for more information.
5. 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.
6. DO NOT re-freeze. Once thawed to 25°C, the adhesive should not be re-frozen.

Product specification

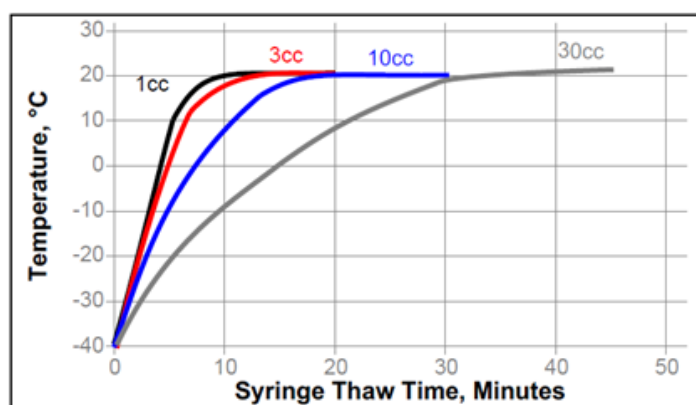
The technical data contained herein are intended as reference only and are not considered specifications for the product. Product specifications are located on the Certificate of Analysis or please contact Henkel representative.

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Conversions

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

**Directions for use**

1. Thawed material should immediately be 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. Alternate dispense amounts may be used depending on the application requirements.

Storage:

Store product in an 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 greater than -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.

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Reference 1