

LOCTITE® PE 8083 AB

November 2020

PRODUCT DESCRIPTION

LOCTITE® PE 8083 provides the following product characteristics:

| | |
|--|---|
| Technology | Epoxy |
| Chemical Type | Epoxy |
| Appearance - Part A | Black |
| Appearance - Part B | Light yellow |
| Component | Two components |
| Mixing Ratio, by weight Part A : Part B | 9 : 1 |
| Curing Condition | Heat cure |
| Application | Encapsulation of motor stators, transformer coils, transmission actuators |

LOCTITE® PE 8083 are solvent free, thermal conductive potting product. This material has high thermal conductivity while achieving low mixed viscosity for easy processing, has excellent electrical insulation and Automatic Transmission Fluid (ATF) oil resistance

LOCTITE® PE 8083 is recommended for encapsulation of components that require heat dissipation and good thermal shock resistance.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Part A Properties

| | |
|--|-------------------|
| Specific Gravity @ 25°C, g/cc | 2.3 to 2.6 |
| Viscosity @ 25°C, mPa·s (Rheometer, PP25) | 80,000 to 130,000 |

Part B Properties

| | |
|---|------------|
| Specific Gravity @ 25°C, g/cc | 1.1 to 1.2 |
| Viscosity @ 25°C, mPa·s (Brookfield LVT, 1#, 30 rpm) | 60 to 160 |

Mixed Properties

| | |
|--|------------------|
| Viscosity @ 25°C, mPa·S (Rheometer, PP25) | 15,000 to 25,000 |
| Viscosity @ 40°C, mPa·S (Rheometer, PP25) | 6,000 to 10,000 |
| Viscosity @ 60°C, mPa·S (Rheometer, PP25) | 2,000 to 5,000 |
| Working life, 100 grams @ 25°C, minutes | >240 |
| Working life, 100 grams @ 60°C, minutes | >60 |

TYPICAL PROPERTIES OF CURED MATERIAL

Cured @ 80°C 1 h + @ 120°C 2 h

Physical Properties

| | |
|-------------------------------------|---------------------|
| Thermal Conductivity, W/(m·K) | 0.8 to 1.2 |
| Hardness, Shore D | 80 to 90 |
| Glass Transition Temperature, °C | 85 to 100 |
| Density, gm/cc | 2.2 to 2.4 |
| Lap Shear Strength (Al/Al), MPa | 15 to 20 |
| Breakdown Voltage (2mm), kV/mm | >15 |
| Volume resistivity, ohm·cm 25°C | >1×10 ¹⁴ |
| Volume resistivity, ohm·cm 90°C | >1×10 ¹³ |
| Volume resistivity, ohm·cm 150°C | >1×10 ¹² |

GENERAL INFORMATION

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

Product Benefits

- Excellent electrical insulation at room & high temperature.
- Excellent Automatic Transmission Fluid(ATF) oil resistance 150°C.
- High thermal conductivity, low mixed viscosity for easy process.
- Solvent free, no VOC produced during cured process.
- Excellent thermal shock resistance -40 to 150°C.
- Good adhesion to metal.

Directions For Use:

- Complete cleaning of the components and substrates should be performed to remove contamination such as dust, moisture, salts and oils which may decrease adhesion and electrical insulation.
- To ensure a void-free embedment, vacuum deairing should be used to remove any entrapped air during the mixing operation.
- Advice deairing at a controlled vacuum, foam may rise from the material multiple times, deairing can be completed until most of the bubbling has ceased.
- Gentle warming of the assembled components will help to reduce material viscosity and improve the flow the material into the components, but material pot life may be shortened.
- For optimum performance, the recommended curing conditions are one hour at 80°C plus two hours at 120°C. Curing conditions (time and temperature) may vary based on customer's experience and their application

requirements, as well as customer curing equipment, oven loading and actual oven temperature.

- More specific operation please contact Technical Service Center.

Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

Optimal Storage: 5 to 35°C

Part A is highly filled and fillers may slightly settle down after long time storage. Before mixing, part A must be homogeneous and should be stirred appropriately before use. Stirring can also be done at 40 or 60°C.

Part B store at cool and dry place. Keep the container tightly sealed after using.

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.

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.

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, or Henkel Canada Corporation, 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 1.0