

LOCTITE 3128

June 2022

PRODUCT DESCRIPTION

LOCTITE 3128 provides the following product characteristics:

Technology	Epoxy
Chemical Type	Epoxy
Appearance (uncured)	Black viscous liquid ^{LMS}
Components	One component - requires no mixing
Viscosity	Medium
Cure	Heat cure (low temperature)
Application	Bonding heat sensitive components

LOCTITE 3128 is a one part, heat curable epoxy. This product is designed to cure at low temperature and gives excellent adhesion on a wide range of materials in considerably short time. Typical applications include Memory cards, CCD/CMOS Assemblies. Particularly suited where low curing temperatures are required for heat sensitive components.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.6
Yield Point, 25 °C, mPa·s	44,000
Cone & Plate Rheometer	
Casson Viscosity @ 25 °C, mPa·s (cP)	7,000 to 27,000 ^{LMS}
Cone & Plate Rheometer	
Pot life @ 25°C, weeks	3
Shelf Life @ -25 to -15°C, days	365

TYPICAL CURING PERFORMANCE

Recommended Curing Conditions

20 minutes @ 80°C bondline temperature
60 minutes @ 60 °C bondline temperature

Note: Sufficient time must be added to allow the bond location to reach the desired cure temperature. Curing profiles should be developed for each device.

TYPICAL PROPERTIES OF CURED MATERIAL

Cured for 60 minutes @ 80 °C

Physical Properties

Density @ 25 °C, g/cm ³	1.7
Volume Shrinkage, ASTM D 792, %	3.1
Linear Shrinkage, ASTM D 792, %	1.0
Shore Hardness, ISO 868, Durometer D	88
Glass Transition Temperature, °C: (Tg) via TMA, ISO 11359-2	45
Coefficient of Thermal Expansion, ISO 11359-2, K ⁻¹ :	
alpha 1	40×10 ⁻⁶
alpha 2	130×10 ⁻⁶
Water Absorption, ISO 62, %: 24 hours in water @ 23 °C	0.17
Elongation, at break, ISO 527-3, %	2.3
Tensile Strength, at break, ISO 527-3	N/mm ² 35 (psi) (5,100)
Tensile Modulus, ISO 527-3	N/mm ² 3,900 (psi) (570,000)

Electrical Properties

Volume Resistivity, IEC 60093, Ω·cm	2.9×10 ¹⁶
Surface Resistivity, IEC 60093, Ω	2.8×10 ¹⁶
Dielectric Constant / Dissipation Factor, IEC 60250:	
10 kHz	5.8 / 0.01
1 MHz	5.4 / 0.04
10 MHz	5.1 / 0.05

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured for 30 minutes @ 80 °C

Lap Shear Strength :

Steel (grit blasted)	N/mm ² 21 (psi) (3,000)
Epoxyglass (thickness 1.6 mm)	N/mm ² ≥7 ^{LMS} (psi) (≥1,015)

TYPICAL ENVIRONMENTAL RESISTANCE

Cured for 30 minutes @ 80°C

Lap Shear Strength :

Epoxy glass (thickness 1.6 mm)

Chemical/Solvent Resistance

Aged under conditions indicated and tested @ 22 °C

Environment	°C	% of initial strength		
		100 h	500 h	1000 h
90% RH	60	110	100	95
90% RH	40	110	105	105

TYPICAL ENVIRONMENTAL RESISTANCE

Outgassing Properties

Outgassing, NASA Outgassing:

TML, %	0.4
CVCM, %	<0.01
WVR, %	0.08

GENERAL INFORMATION

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

Loctite Material Specification^{LMS}

LMS dated May 19, 2004. Test reports for each batch are available for the indicated properties. LMS test reports include selected QC test parameters considered appropriate to specifications for customer use. Additionally, comprehensive controls are in place to assure product quality and consistency. Special customer specification requirements may be coordinated through Henkel Quality.

Storage

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

Optimal Storage: -15 °C to -25 °C. Storage below minus (-)25 °C or greater than minus (-)15 °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 Henkel representative.

Conversions

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

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 2.5