

LOCTITE® STYCAST E 151-3

May 2024

PRODUCT DESCRIPTION

LOCTITE® STYCAST E 151-3 provides the following product characteristics:

Technology	Epoxy
Appearance	Tan liquid
Operating temperature range	-40°C to 130°C
Product benefits	<ul style="list-style-type: none"> • One component • Low viscosity • Excellent thermal shock resistance • Excellent impregnation • Semi-flexible
Cure	Heat cure
Application	Impregnation of tightly wound coils or large castings
Typical assembly applications	Optoelectronic lens assembly
Key substrates	Glass, Stainless steel, Au Plated PCB

LOCTITE® STYCAST E 151-3 is an unfilled, low viscosity, semi-flexible, one component, epoxy encapsulant and impregnant. It offers excellent thermal shock and impact resistance, low exotherm, and permanent resiliency. It has excellent wetting properties, long working life, and rapid cure at elevated temperatures.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Viscosity, Brookfield, ASTM-D-2393, Pa.s/cP	0.8/800
Density, ASTM-D-792, g/ml	1.06

TYPICAL PROPERTIES OF CURED MATERIAL

Hardness, Shore D, ASTM D-2240	
@25°C	55
@121°C	10
Linear shrinkage, ASTM D-2566, cm/cm	0.013
Water absorption, (10days @ 96% RH), ASTM D-570	0.8
Coefficient of thermal expansion, ASTM D-3386, ppm/°C:	60
Thermal conductivity, ASTM D-2214, W/m-K	0.29
Dielectric strength, ASTM D-149, kV/mm	12.8
Dielectric constant, @ 1kHz, ASTM D-150	3.49
Dissipation factor, @ 1kHz, ASTM D-150	0.025
Volume resistivity, ASTM D-257, Ohm-cm	
@25°C	9×10^{14}
@130°C	2×10^{11}

Cure schedule

Cure at any one of the recommended cure schedules. For optimum performance, follow the initial cure with a post cure of 2 to 4 hours at the highest expected use temperature. Alternate cure schedules may also be possible. Contact your Henkel representative for further information. This product may be cured in large castings with no adverse heat of exotherm effects. There is no limit on casting size due to shrinkage or exotherm. To minimize stress during cure, large parts should be cured at 125°C or below.

Temperature, °C	Cure time
85	16 hours
100	4 hours
125	2 hours
135	1 hour
160	15 minutes

GENERAL INFORMATION

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

This product, like most epoxy compounds, possesses the ability to cause skin and eye irritation upon contact. Certain individuals may also develop an allergic reaction after exposure (skin contact, inhalation of vapors, etc.) which may manifest itself in a number of ways including skin rashes and an itching sensation. Handling this product at elevated temperature may also generate vapors irritating to the respiratory system.

DIRECTIONS FOR USE

1. Components and substrates should be completely cleaned prior to potting or encapsulating.
2. Contents of the shipping container should be thoroughly mixed prior to use as separation may occur during shipping and storage.
3. Insulation components such as coils, paper and other insulation component should be preheated to 100-120°C.
4. For coil molding, preheat the components and mold to 70-90°C prior to pouring.
5. For impregnation, submerge components in the reservoir containing LOCTITE® STYCAST E 151-3 until assembly is completely penetrated by the resin. Vacuum may be applied to assist in the impregnation process.

Storage

For best results, store in original, tightly covered containers. Storage in cool, clean and dry areas is recommended.

Shelf life is typically 3 months. On some products it may vary by package size and storage conditions. Contact Henkel for details.

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.

Approval and Certificate

Please contact Henkel representative for related approval or certificate of this product.

Data ranges

The data contained herein may be reported as a typical value. Values are based on actual test data and are verified on a periodic basis.

Temperature/Humidity Ranges: 23°C / 50% RH = 23±2°C / 50±5% RH

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 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