

LOCTITE STYCAST 2651-1

April 2019

PRODUCT DESCRIPTION

LOCTITE STYCAST 2651-1 provides the following product characteristics:

Technology	Epoxy
Appearance	Black liquid
Components	One Component
Product Benefits	<ul style="list-style-type: none"> • Ease of use • Good thermal shock resistance • Good adhesion to a variety of substrates • Finished parts withstand harsh environmental exposure • Reliable electronic assemblies
Cure	Heat cure
Application	Encapsulation, Potting
Typical Assembly Applications	<ul style="list-style-type: none"> • Small electrical and electronic assemblies
Operating Temperature	-40 to +155 °C

LOCTITE STYCAST 2651-1 is a one component medium viscosity, filled, general purpose epoxy encapsulation resin. It has good thermal shock properties and adheres to a wide variety of substrates. LOCTITE STYCAST 2651-1 is similar in cured properties to LOCTITE STYCAST 2651MM CAT 11 .

TYPICAL PROPERTIES OF UNCURED MATERIAL

Density, g/cm ³	1.6
Viscosity, Brookfield, mPa·s (cP):	
Spindle 7, speed 20 rpm	52,000
Shelf Life @ 25 °C (from date of qualification in original seal), days	90
Flash Point - See SDS	

TYPICAL CURING PERFORMANCE AS MIXED

Recommended Cure Schedule

8 hours @ 80°C
6 hours @ 100°C
4 hours @ 120°C

Post Cure

2 to 4 hours @ 150°C

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 150°C.

This product generates moderate heat during cure. No adverse exotherm effects are obtained when cured at 120°C in masses up to approximately 50 grams.

The above cure profiles are guideline recommendations. Cure conditions (time and temperature) may vary based on customers' experience and their application requirements, as well as customer curing equipment, oven loading and actual oven temperatures.

TYPICAL PROPERTIES OF CURED MATERIAL AS MIXED

Physical Properties

Coefficient of Thermal Expansion 10 ⁻⁶ /°C, :	
(Tg) by TMA	45
Hardness, Shore D	88
Linear Shrinkage, cm/cm	0.002
Water Absorption, 24 hr boil, %	0.1
Thermal Conductivity, W/(m·K)	0.58

Electrical Properties

Dielectric Strength, kV/mm	17.3
Arc Resistance, seconds	182
Volume Resistivity, ohm-cm :	
@ 25°C	1×10 ¹⁵
Dielectric Constant / Dissipation Factor:	
@ 60Hz	4.7/0.02
@ 1kHz	4.5/0.01
@ 1mHz	3.7/0.02

TYPICAL CURED PERFORMANCE AS MIXED

Miscellaneous

Tensile Strength	N/mm ² 55
	(psi) (8,000)
Compressive Strength	N/mm ² 107
	(psi) (15,500)
Flexural Strength	N/mm ² 103
	(psi) (15,000)

GENERAL INFORMATION

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

DIRECTIONS FOR USE

1. To ensure the long term performance of the potted or encapsulated electrical / electronic assembly, complete cleaning of components and substrates should be performed to remove contamination such as dust, moisture, salt, and oils which can cause electrical failure, poor adhesion or corrosion in an embedded part.
2. Some filler settling is common during shipping and storage. For this reason, it is recommended that the contents of the shipping container be thoroughly mixed prior to use.
3. To ensure a void-free embedment, vacuum deairing or degassing should be performed to remove any entrapped air introduced during the mixing operation.
4. Pump-down or pull vacuum on the mixture to achieve an ultimate vacuum or absolute pressure of 1 to 5 torr or mm Hg. The foam will rise several times in the liquid height and then subside.
5. Continue vacuum deairing until most of the bubbling has ceased. This usually takes 3 to 10 minutes.
6. To facilitate deairing in difficult to deair materials, add 1 to 3 drops of an air release agent, such as ANTIFOAM 88 into 100 grams of mixture.
7. Gentle warming will also help, but working life will be shortened.
8. Pour mixture into cavity or mold. Gentle warming of the mold or assembly reduces the viscosity. This improves the flow of the material into the unit having intricate shapes or tightly packed coils or components. Further vacuum deairing in the mold may be required for critical applications.

STORAGE:

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

Optimal Storage : 25 °C

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 or Customer Service 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 specifications for this product.

Conversions

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

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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.

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Reference 1

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