

LOCTITE STYCAST 2651-40 CAT 11J

March 2022

PRODUCT DESCRIPTION

LOCTITE STYCAST 2651-40 CAT 11J provides the following product characteristics:

Technology	Epoxy
Appearance (Resin)	Black
Components	Two components - requires mixing
Mix Ratio, by weight - Material:Catalyst	100 : 10.5
Mix Ratio, by Volume - Material:Catalyst	100 : 14
Product Benefits	• General purpose • Low viscosity • Dielectric • Long pot life • Excellent chemical resistance • Good physical and chemical properties at elevated temperatures
Cure	Heat cure
Application	Encapsulation
Operating Temperature	-55 to +155 °C

LOCTITE STYCAST 2651-40 CAT 11J epoxy encapsulant is designed for general purpose applications and has excellent adhesion to a wide variety of substrates. LOCTITE STYCAST 2651-40 CAT 11J is the lower viscosity version of LOCTITE STYCAST 2651 encapsulant. LOCTITE STYCAST 2651-40 CAT 11J is also available in the color blue and unpigmented versions.

LOCTITE STYCAST 2651-40 CAT 11J can be obtained certified to Military Specification Mil-I-16923.

LOCTITE STYCAST 2651-40 can be used with a variety of catalysts. For more information on mixed properties when used with other available catalysts, please contact your local technical service representative for assistance and recommendations.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Part A Properties LOCTITE STYCAST 2651-40

Viscosity, Brookfield , mPa·s (cP):	
Spindle 5, speed 5 rpm	32,500
Density, g/cm ³	1.5
Shelf Life @ 25°C, months	6

Flash Point - See SDS

Part B Properties LOCTITE CAT 11J

Viscosity @ 25 °C, mPa·s (cP)	47.5
Flash Point - See SDS	

Mixed Properties

Mixed Viscosity, Brookfield , mPa·s (cP)	4,000
Density, g/cm ³	1.45
Working Life, 100 g mass @ 25°C, hours	>4
Flash Point - See SDS	

TYPICAL CURING PERFORMANCE

Cure Schedule

12 hours @ 80°C
3 hours @ 100°C
45 minutes @ 120°C

For optimum performance, follow the initial cure with a post cure of 2 to 4 hours at the highest expected use temperature.

The above cure profiles are guideline recommendations. Cure 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

Shore Hardness, Shore D	88
Coefficient of Thermal Expansion, , TMA, 10 ⁻⁶ /°C	45
Thermal Conductivity , W/(m·K)	0.55
Water Absorption , 24- hour boil, %	0.1
Compressive Strength :	
N/mm ²	107
(psi)	15,500
Tensile Strength:	
N/mm ²	63
(psi)	9,200
Flexural Strength:	
N/mm ²	96
(psi)	14,000

Electrical Properties

Dielectric Strength, volts/mil	450
Dielectric Constant :	
@ 60Hz	4.7
@ 1 KHz	4.5
@ 1MHz	3.8
Dissipation Factor:	
@ 60Hz	0.02
@ 1 KHz	0.01
@ 1MHz	0.02
Volume Resistivity @ 25°C, ohm-cm	>1×10 ¹⁴

Outgassing Properties

Outgassing , per NASA Reference Publication 1124, %:	
sample cured 4 hours @ 75°C	
TML	0.55
CVCN	0.01

GENERAL INFORMATION

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

DIRECTIONS FOR USE

1. Complete cleaning of the 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. Power mixing is preferred to ensure a homogeneous product.
3. Accurately weigh resin and hardener into a clean container in the recommended ratio. Weighing apparatus having an accuracy in proportion to the amounts being weighed should be used.
4. Blend components by hand, using a kneading motion, for 2 to 3 minutes. Scrape the bottom and sides of the mixing container frequently to produce a uniform mixture.
5. If possible, power mix for an additional 2 to 3 minutes. Avoid high mixing speeds. This can entrap excessive amounts of air. It can also cause overheating of the mixture, resulting in reduced working life.
6. To ensure a void-free embedment, vacuum deairing should be used to remove any entrapped air introduced during the mixing operation.
7. 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.
8. Continue vacuum deairing until most of the bubbling has ceased. This usually takes 3 to 10 minutes.
9. To facilitate deairing in difficult to deair materials, add a few drops of an air release agent, such as ANTIFOAM 88 into 100 grams of mixture.
10. Gentle warming will also help, but pot life will be shortened.
11. Pour mixture into cavity or mold.
12. 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.
13. Further vacuum deairing in the mold may be required for critical applications.

STORAGE

Store in original, tightly covered containers in clean, dry areas. 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 Henkel Representative.

Not for product specifications

The technical data contained herein are intended as reference only. Please contact your local Henkel representative for assistance and recommendations on the specifications of this product.

Conversions

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

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