Technical Data Sheet

LOCTITE STYCAST 2651-40 CAT 11

August 2015

PRODUCT DESCRIPTION

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

Technology	Epoxy
Appearance (Resin)	Black
Components	Two component - 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	Encapsulant
Operating Temperature	-55 to +155 °C

LOCTITE STYCAST 2651-40 CAT 11 epoxy encapsulant is designed for general purpose applications and has excellent adhesion to a wide variety of substrates. LOCTITE STYCAST 2651-40 CAT 11 is the lower viscosity version of LOCTITE STYCAST 2651 encapsulant.

LOCTITE STYCAST 2651-40 CAT 11 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/cm³	1.5
Shelf Life @ 25°C, months	6
Flash Point - See SDS	

Part B Properties *LOCTITE CAT 11*

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

Mixed Properties

Mixed Viscosity, Brookfield , mPa·s (cP)	4,000
Density , g/cm³	1.45
Working Life, 100 g mass @ 25ºC, 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 their 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}/ºC	45
Thermal Conductivity , W/(m-K)	0.55
Water Absorption , 24- hour boil, %	0.1
Compressive Strength :	
N/mm²	107
(psi)	15,500
Tensile Strength:	
N/mm²	63
(psi)	9,200
Flexural Strength:	
N/mm²	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 @ 25ºC, ohm-cm	$>1\times10^{14}$

Outgassing Properties

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

GENERAL INFORMATION

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

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 and 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 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

(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
N x 0.225 = lb
N/mm x 5.71 = lb/in
psi x 145 = N/mm²
MPa = N/mm²
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

Disclaimer

Note:

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Reference 0.1