Technical Data Sheet

LOCTITE STYCAST 2651-40 W1 CAT 27-1

May 2019

PRODUCT DESCRIPTION

LOCTITE STYCAST 2651-40 W1 CAT 27-1 provides the following product characteristics:

Technology	Epoxy
Appearance (Resin)	Black
Product Benefits	• Low viscosity • Room temperature cure capability • Can be color coded to specification
Cure	Room temperature or Heat cure
Application	Potting, Encapsulation

LOCTITE STYCAST 2651-40 W1 CAT 27-1 epoxy encapsulant is designed for general purpose applications and has excellent adhesion to a wide variety of substrates. When fully cured, the material is readily machined with carbide tools.

LOCTITE STYCAST 2651-40 W 1 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.

CATALYST DESCRIPTION

LOCTITE CAT 27-1 provides the following product characteristics:

Product Benefits	• Long pot life • Excellent chemical resistance • Good physical and chemical properties at elevated temperatures
Cure	Heat cure

TYPICAL UNCURED PROPERTIES

LOCTITE STYCAST 2651-40 W1

Brookfield Viscosity , mPa·s (cP):	
Spindle 6, speed 5 rpm	33,000
Density, g/cm³	1.5
Shelf Life @ 18 to 25°C (from date of manufacture), days	365
Flash Point - See SDS	

LOCTITE CAT 27-1

Viscosity @ 25 °C, mPa·s (cP)	275
Density, g/cm³	1.05
Flash Point - See SDS	

TYPICAL UNCURED PROPERTIES AS MIXED

LOCTITE STYCAST 2651-40 W1 with LOCTITE CAT 27-1

Mix Ratio, Material:Catalyst:	
By Weight	100 : 15
By Volume	100 : 22
Work Life, 100 grams, @ 25ºC, hours	2

TYPICAL CURING PERFORMANCE

Cure Schedule

LOCTITE STYCAST 2651-40 W1 with LOCTITE CAT 27-1

4 hours @ 120°C

For optimum performance, follow the initial cure with a post cure of 4 to 6 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

LOCTITE STYCAST 2651-40 W1 with LOCTITE CAT 27-1

Physical Properties

Hardness, Shore D		94
Glass Transition Temperature, °C:		
TMA		145
DMA, Tangent Delta		141
Coefficient of Thermal Expansion, ppm/ºC :		
Below Tg		49
Above Tg		144
Young's modulus (E) :		
@ 35°C	N/mm²	3,100
	(psi)	(21.4)
@ 50°C	N/mm²	3,040
	(psi)	(21.0)
@ 100°C	N/mm²	2,600
	(psi)	(17.9)
@ 150°C	N/mm²	70
	(psi)	(0.483)
Weight Loss, %:		
@ 150°C		0.1
@ 200°C		0.2
@ 250°C		0.32
@ 300°C		0.46
@ 700°C		59.8
Thermal Conductivity, W/(m-K)		0.5
Linear Shrinkage, %		0.87
Water Absorption, %:		
After 1 day @ 25ºC		0.04
After 7 days @ 25ºC		0.1
Operating temperature, ºC:		
Continuous		-40 to +175
Intermittent		-40 to +200

Electrical Properties

Volume Resistivity, ohm-cm	2.8×10^{15}
Surface Resistivity, ohms	6.5×10^{16}

Dielectric Constant / Dissipation Factor:	
@ 50 Hz	4.8/0.039
@ 1 KHz	4.8/0.04
@ 1 MHz	4.0/0.04

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.
3. Power mixing is preferred to ensure a homogeneous product.
4. 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.
5. 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.
6. 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.
7. To ensure a void-free embedment, vacuum deairing should be used to remove any entrapped air introduced during the mixing operation.
8. Vacuum deair mixture at 1 to 5 mm mercury. The foam will rise several times the liquid height and then subside.
9. Continue vacuum deairing until most of the bubbling has ceased. This usually takes 3 to 10 minutes.
10. To facilitate deairing, gentle warming will also help but working life will be shortened. Reduced viscosity provides easy air release upon standing for a few minutes.
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.
14. During storage at room temperature for long periods, it is possible that the viscosity of LOCTITE STYCAST 2651-40 W1 CAT 27-1 may increase and may exceed its upper specification limit. The viscosity can be brought back to the normal level by moderate mixing.

STORAGE:

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

Optimal Storage : 18 to 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/F
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:

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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