Technical Data Sheet

LOCTITE STYCAST U 2500FC

September 2018

PRODUCT DESCRIPTION

LOCTITE STYCAST U 2500FC provides the following product characteristics:

Technology	Polyurethane
Components	Two components - requires mixing
Appearance - Part A	Black liquid
Appearance - Part B	Amber liquid
Product Benefits	• Low viscosity • Flexible • Low stress on embedded components • Flows in and around tight gaps in electronic assemblies
Mix Ratio by weight: Part A: Part B	100 : 7.0
Mix Ratio by volume: Part A: Part B	100 : 8.5
Operating Temperature	-40 to +125 °C
Application	Encapsulation and Potting
Cure	Heat cure

LOCTITE STYCAST U 2500FC is an encapsulant designed for in-cabin automotive electronic applications including air bag sensors, instrument panel switches, and occupant detection and position sensors. It allows for complete impregnation of either small tightly wound coils or large castings.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Part A Properties

Brookfield Viscosity , mPa·s (cP)	9,000
Density, g/cm³	1.47
Shelf Life @ 18 to 25ºC, days	183
Flash Point - See SDS	

Part B Properties

Brookfield Viscosity , mPa·s (cP)	50
Density, g/cm³	1.23
Shelf Life @ 18 to 25ºC, days	183
Flash Point - See SDS	

Mixed Properties

Brookfield Viscosity , mPa·s (cP)	6,000
Density, g/cm³	1.45
Shelf Life @ 18 to 25ºC, days	183
Pot life, 100 grams mass, minutes	~10
Flash Point - See SDS	

TYPICAL CURING PERFORMANCE

Cure Schedule

24 hours @ 25°C
4 hours @ 60°C

For optimum performance, follow the initial cure with a post cure of 2 to 4 hours @ 100 to 120°C.

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

Sample cured 4 hours @ 60ºC plus 2 hours @ 120ºC

Physical Properties

Hardness, Shore A:		
@ 25ºC		53
@ -20ºC		54
Glass Transition Temperature, °C		-37
Coefficient of Thermal Expansion, , 10^{-6}/ºC:		
Below Tg		37
Above Tg		177
Moisture Absorption, 24 hrs @ 25ºC, %		+0.01
Modulus @ 25 °C	N/mm²	12.0
	(psi)	(1,740)

Electrical Properties

Dielectric Constant @ 1 MHz @ 25°C	5.4
Dissipation Factor @ 1 MHz @ 25 °C	0.07
Volume Resistivity @ 25ºC, ohm-cm	1.4×10^{13}

TYPICAL PERFORMANCE OF CURED MATERIAL

Miscellaneous:

Al to Al @ 25°C	N/mm²	4.3
	(psi)	(620)

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 the 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. If possible, power mix to an additional 2 to 3 minutes. Avoid high mixing speeds which could entrap excessive amounts of air or cause overheating of the mixture resulting in reduced working life.
6. To ensure a void-free embedment, vacuum deairing or degassing should be performed 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. 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.
10. LOCTITE STYCAST U 2500FC is an accelerated version of LOCTITE STYCAST U 2500.

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.

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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