

LOCTITE STYCAST 2850FT-FR

July 2019

PRODUCT DESCRIPTION

LOCTITE STYCAST 2850FT-FR provides the following product characteristics:

Technology	Epoxy
Appearance (Resin)	Black liquid
Product Benefits	<ul style="list-style-type: none"> Thermally conductive Electrically insulative Thermal shock resistant Low CTE Can be used with a variety of catalysts Flame retardant
Application	Encapsulation, Potting

LOCTITE STYCAST 2850FT-FR is recommended for encapsulation of components that require heat dissipation and thermal shock properties. When cured with either LOCTITE CAT 9 or LOCTITE CAT 11, this material's flame retardant properties is equivalent to the requirements of UL 94 V-0.

LOCTITE STYCAST 2850 FT-FR (blue) is recommended for use for high voltage applications.

LOCTITE STYCAST 2850FT-FR 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.

PRODUCT MIXED WITH CATALYST DESCRIPTION

LOCTITE STYCAST 2850FT-FR with LOCTITE CAT 9 provides the following product characteristics:

Product Benefits	<ul style="list-style-type: none"> General purpose Good chemical resistance Good physical strength
Cure	Room temperature cure
Mix Ratio, by weight - Material:Catalyst	100 : 3
Mix Ratio, by Volume - Material:Catalyst	100 : 8
Operating Temperature	-40 to +130 °C

LOCTITE STYCAST 2850FT-FR with LOCTITE CAT 11 provides the following product characteristics:

Product Benefits	<ul style="list-style-type: none"> Long pot life Excellent chemical resistance Good physical and chemical properties at elevated temperatures
Cure	Heat cure
Mix Ratio, by weight - Material:Catalyst	100 : 4
Mix Ratio, by Volume - Material:Catalyst	100 : 9
Operating Temperature	-55 to +155 °C

TYPICAL UNCURED PROPERTIES AS MIXED

LOCTITE STYCAST 2850FT-FR

Viscosity, Brookfield , mPa·s (cP)	200,000
Density, g/cm ³	2.45
Shelf Life @ 18 to 25°C (from date of manufacture), days	365
Flash Point - See SDS	

TYPICAL UNCURED PROPERTIES AS MIXED

LOCTITE STYCAST 2850FT-FR with LOCTITE CAT 9

Density, g/cm ³	2.33
Mixed Viscosity, Brookfield , mPa·s (cP)	80,000
Work Life (100 g) @ 25 °C, minutes	45

LOCTITE STYCAST 2850FT-FR with LOCTITE CAT 11

Density, g/cm ³	2.33
Mixed Viscosity, Brookfield , mPa·s (cP)	65,000
Work Life (100 g) @ 25 °C, hours	>4

TYPICAL CURING PERFORMANCE AS MIXED

Cure Schedule

LOCTITE STYCAST 2850FT-FR with LOCTITE CAT 9

16 to 24 hours @ 25°C or
4 to 6 hours @ 45°C or
1 to 2 hours @ 65°C

LOCTITE STYCAST 2850FT-FR with LOCTITE CAT 11

8 to 16 hours @ 80°C or
2 to 4 hours @ 100°C or
30 to 60 minutes @ 120°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 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 AS MIXED

LOCTITE STYCAST 2850FT-FR with LOCTITE CAT 9

Physical Properties

Hardness, Shore D	92
Coefficient of Thermal Expansion 10 ⁻⁶ /°C, TMA	21
Thermal Conductivity, W/(m·K)	1.23

Water Absorption, 24-hr boil, % 0.05

Electrical Properties

Volume Resistivity @ 25°C, ohm-cm 2.54×10^{15}
 Dielectric Strength, kV/mm 14
 Dielectric Constant / Dissipation Factor :
 @ 60 Hz 6.1/0.0015
 @ 1 kHz 5.8/0.0066
 @ 1 mHz 5.6/0.0127

LOCTITE STYCAST 2850FT-FR with LOCTITE CAT 11

Physical Properties

Hardness, Shore D 94
 Coefficient of Thermal Expansion $10^{-6}/^{\circ}\text{C}$, TMA 30
 Thermal Conductivity, W/(m-K) 1.23
 Water Absorption, 24-hr boil, % 0.1

Electrical Properties

Volume Resistivity @ 25°C, ohm-cm $>1 \times 10^{16}$
 Dielectric Strength, kV/mm 19.3
 Dielectric Constant / Dissipation Factor :
 @ 60 Hz 6.6/0.02
 @ 1 kHz 6.3/0.01
 @ 1 mHz 6.0/0.02

TYPICAL CURED PERFORMANCE AS MIXED

LOCTITE STYCAST 2850FT-FR with LOCTITE CAT 9

Miscellaneous

Tensile Strength N/mm² 23
 (psi) (3,300)
 Compressive Strength N/mm² 67
 (psi) (9,700)
 Flexural Strength N/mm² 39
 (psi) (5,650)

LOCTITE STYCAST 2850FT-FR with LOCTITE CAT 11

Miscellaneous

Tensile Strength N/mm² 58
 (psi) (8,400)
 Compressive Strength N/mm² 110
 (psi) (16,000)
 Flexural Strength N/mm² 90
 (psi) (13,000)

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 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. Power mixing is preferred to ensure 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. 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.

5. To ensure a void-free embedment, vacuum de-airing or degassing should be performed to remove any entrapped air introduced during the mixing operation. 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 the liquid height and then subside. Continue vacuum de-airing until most of the bubbling has ceased. This usually requires 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.

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.

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

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

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