

# LOCTITE® STYCAST 2850FT CAT 9

October 2024

## PRODUCT DESCRIPTION

LOCTITE® STYCAST 2850FT CAT 9 provides the following product characteristics:

|                                      |  |
|--------------------------------------|--|
| <b>Technology</b>                    | Epoxy  |
| <b>Appearance (resin)</b>            | Black  |
| <b>Product benefits</b>              | <ul style="list-style-type: none"> <li>Thermally conductive</li> <li>Electrically insulative</li> <li>Thermal shock resistant</li> <li>Low CTE</li> <li>Can be used with a variety of catalysts</li> </ul> |
| <b>Application</b>                   | Thermally conductive epoxy encapsulant   |
| <b>Typical assembly applications</b> | Encapsulating  |

LOCTITE® STYCAST 2850FT CAT 9 is recommended for encapsulation of components that require heat dissipation and thermal shock properties.

LOCTITE® STYCAST 2850FT CAT 9 is also available in the unpigmented version.

LOCTITE® STYCAST 2850FT 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 9 provides the following product characteristics:

|  |   |
|--|---|
| <b>Product benefits</b>                          | <ul style="list-style-type: none"> <li>General purpose</li> <li>Good chemical resistance</li> <li>Good physical strength</li> </ul> |
| <b>Cure</b>                                      | Room temperature cure   |
| <b>Mix ratio, by weight - material: catalyst</b> | 100 : 3.5   |
| <b>Mix ratio, by volume - material: catalyst</b> | 100 : 8.5   |
| <b>Operating temperature, °C</b>                 | -40 to 130  |

## TYPICAL PROPERTIES OF UNCURED MATERIAL

### LOCTITE® STYCAST 2850FT

|   |         |
|---|---------|
| Brookfield viscosity, mPa.s (cP)                          |         |
| Spindle 7, speed 10 rpm                                   | 250,000 |
| Brookfield viscosity - small sample adapter, mPa.s (cP)   |         |
| (equivalent parameters)                                   |         |
| Spindle 14, speed 3 rpm                                   | 250,000 |
| Density, g/cm <sup>3</sup>                                | 2.4     |
| Shelf life @ 18 to 25°C, (from date of manufacture), days | 548     |
| Flash point - see SDS                                     |         |

### LOCTITE® CAT 9

|                              |     |
|------------------------------|-----|
| Viscosity @ 25°C, mPa.s (cP) | 92  |
| Density, g/cm <sup>3</sup>   | 1.0 |
| Flash point - see SDS        |     |

## TYPICAL UNCURED PROPERTIES AS MIXED

### LOCTITE® STYCAST 2850FT with LOCTITE® CAT 9

|   |        |
|---|--------|
| Viscosity @ 25°C, mPa.s (cP)              | 58,000 |
| Density, g/cm <sup>3</sup>                | 2.29   |
| Work life, 100 gram mass, @ 25°C, minutes | 45     |

## TYPICAL CURING PERFORMANCE

### Cure schedule

#### LOCTITE® STYCAST 2850FT with LOCTITE® CAT 9

|                       |
|-----------------------|
| 16 to 24 hours @ 25°C |
| 4 to 6 hours @ 45°C   |
| 1 to 2 hours @ 65°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****LOCTITE® STYCAST 2850FT with LOCTITE® CAT 9****Physical properties**

|  |      |
|--|------|
| Hardness, Shore D                      | 96   |
| Linear shrinkage, %                    | 0.2  |
| Water absorption, (24 hr immersion), % | 0.03 |
| Coefficient of thermal expansion, ppm  |      |
| Alpha 1                                | 35.0 |
| Alpha 2                                | 98.9 |
| Glass transition temperature, °C       | 86   |
| Thermal conductivity, W/(m-K)          | 1.25 |

**Electrical properties**

|  |                      |
|--|----------------------|
| Dielectric strength, kV/mm                       | 14.4                 |
| Dielectric constant / Dissipation factor @ 1 MHz | 5.01 / 0.028         |
| Volume resistivity @ 25°C, ohm-cm                | 1 x 10 <sup>15</sup> |

**Outgassing properties**

|  |      |
|--|------|
| Outgassing, per NASA Reference Publication 1124: |      |
| Cured @ 25°C for 24 hours                        |      |
| TML, %   | 0.25 |
| CVCM, %  | 0.01 |

**TYPICAL CURED PERFORMANCE AS MIXED****LOCTITE® STYCAST 2850FT with  
LOCTITE® CAT 9****Miscellaneous**

|                      |                            |                 |
|----------------------|----------------------------|-----------------|
| Flexural strength    | N/mm <sup>2</sup><br>(psi) | 92<br>(13,300)  |
| Compressive strength | N/mm <sup>2</sup><br>(psi) | 155<br>(22,500) |

**GENERAL INFORMATION**

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

**DIRECTIONS FOR USE**

1. Certain resins and hardeners are prone to crystallization. If crystallization does occur, warm the contents of the shipping container to 50 to 60 °C until all crystals have dissolved. Shipping container must be loosely covered during the warming stage to prevent any pressure build-up.
2. Allow contents to cool to room temperature before continuing.
3. Complete cleaning of the substrates should be performed to remove contamination such as oxide layers, dust, moisture, salt and oils which can cause poor adhesion or corrosion in a bonded part.
4. Some separation of components 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.
5. Power mixing is preferred to ensure a homogeneous product.
6. 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.
7. 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.
8. 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.
9. To ensure a void-free embedment, vacuum deairing or degassing should be performed to remove any entrapped air introduced during the mixing operation.
10. Vacuum deair mixture at 1 to 5 mm mercury. The foam will rise several times the liquid height and then subside.
11. Continue vacuum deairing until most of the bubbling has ceased. This usually takes 3 to 10 minutes.
12. To facilitate deairing in difficult to deair materials, add 1 to 3 drops of an air release agent, such as ANTIFOAM 88 into 100 gram of mixture.
13. Gentle warming will also help, but pot life will be shortened.
14. Pour mixture into cavity or mold.
15. 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.
16. Further vacuum deairing in the mold may be required for critical applications.

## STORAGE

Store product in an 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 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.

### Conversions

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

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