

# LOCTITE STYCAST 2850 MT CAT 27-1

September 2020

## PRODUCT DESCRIPTION

LOCTITE STYCAST 2850 MT CAT 27-1 provides the following product characteristics:

|                                                 |                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Technology</b>                               | Epoxy                                                                                                                                                                                                                                                                           |
| <b>Appearance (Resin)</b>                       | Blue                                                                                                                                                                                                                                                                            |
| <b>Components</b>                               | Two components - requires mixing                                                                                                                                                                                                                                                |
| <b>Product Benefits</b>                         | <ul style="list-style-type: none"> <li>• High thermal conductivity</li> <li>• Electrically Insulating</li> <li>• Low CTE</li> <li>• Long pot life</li> <li>• Excellent chemical resistance</li> <li>• Good physical and chemical properties at elevated temperatures</li> </ul> |
| <b>Mix Ratio, by weight - Material:Catalyst</b> | 100 : 5                                                                                                                                                                                                                                                                         |
| <b>Mix Ratio, by Volume - Material:Catalyst</b> | 100 : 13                                                                                                                                                                                                                                                                        |
| <b>Operating Temperature - Continuous</b>       | -40 to +175°C                                                                                                                                                                                                                                                                   |
| <b>Operating Temperature - Intermittent</b>     | -40 to +200°C                                                                                                                                                                                                                                                                   |
| <b>Cure</b>                                     | Heat cure                                                                                                                                                                                                                                                                       |
| <b>Application</b>                              | Encapsulation                                                                                                                                                                                                                                                                   |

LOCTITE STYCAST 2850 MT CAT 27-1 is recommended for encapsulation of components that require heat dissipation and thermal shock properties. It is also recommended for use in high voltage applications where surface arching or tracking is a concern. LOCTITE STYCAST 2850 MT CAT 27-1 has a slightly grainy consistency due to the filler size.

LOCTITE STYCAST 2850 MT 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 2850MT

|                                           |         |
|-------------------------------------------|---------|
| Viscosity, Brookfield, 25 °C, mPa·s (cP): |         |
| Speed 5 rpm, # 6                          | 100,000 |
| Density, g/cm <sup>3</sup>                | 2.6     |
| Shelf Life @ 25°C, months                 | 12      |
| Flash Point - See SDS                     |         |

### Part B Properties LOCTITE CAT 27-1

|                               |      |
|-------------------------------|------|
| Viscosity @ 25 °C, mPa·s (cP) | 300  |
| Density, g/cm <sup>3</sup>    | 1.05 |
| Flash Point - See SDS         |      |

### Mixed Properties

|                                         |   |
|-----------------------------------------|---|
| Working Time, 100 g mass, @ 25°C, hours | 2 |
| Flash Point - See SDS                   |   |

## TYPICAL CURING PERFORMANCE

### Cure Schedule

4 hours @ 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.

Alternate cure schedules may also be possible. Contact your Henkel representative for further information.

The above cure profiles are guideline recommendations. Cure conditions (time and temperature) may vary based on customers' experience and specific application requirements, as well as customer curing equipment, oven loading and actual oven temperatures.

## TYPICAL PROPERTIES OF CURED MATERIAL

### Physical Properties

|                                        |                                              |
|----------------------------------------|----------------------------------------------|
| Hardness, Shore D                      | 94                                           |
| Coefficient of Thermal Expansion, TMA: |                                              |
| Below Tg, ppm/°C                       | 36                                           |
| Above Tg, ppm/°C                       | 107                                          |
| Glass Transition Temperature, °C:      |                                              |
| by TMA                                 | 63                                           |
| by DMA :                               |                                              |
| Tan Δ Max                              | 98                                           |
| Onset Point                            | 80                                           |
| Young's modulus (E) :                  |                                              |
| @ 35 °C                                | N/mm <sup>2</sup> 7,930<br>(psi) (1,150,440) |
| @ 50 °C                                | N/mm <sup>2</sup> 7,650<br>(psi) (1,109,540) |
| @ 100 °C                               | N/mm <sup>2</sup> 200<br>(psi) (29,300)      |
| @ 150 °C                               | N/mm <sup>2</sup> 50<br>(psi) (7,400)        |
| Weight Loss, %:                        |                                              |
| @ 150°C                                | 0.02                                         |
| @ 200°C                                | 0.15                                         |
| @ 250°C                                | 0.28                                         |
| @ 300°C                                | 0.43                                         |
| @ 700°C                                | 18.8                                         |
| Thermal Conductivity, W/(m·K)          | 1.6                                          |
| Linear Shrinkage, %                    | 0.52                                         |
| Water Absorption, %:                   |                                              |
| After 1 day @ RT                       | 0.05                                         |
| After 7 days @ RT                      | 0.09                                         |
| After 1 hour @ 100°C                   | 0.16                                         |

**Electrical Properties**

|                                            |                      |
|--------------------------------------------|----------------------|
| Surface Resistivity, ohms                  | $1.7 \times 10^{16}$ |
| Volume Resistivity, ohm-cm                 | $4.5 \times 10^{15}$ |
| Dielectric Constant / Dissipation Factor : |                      |
| @ 50 Hz                                    | 6.5/0.016            |
| @ 1 KHz                                    | 6.5/0.022            |
| @ 1 MHz                                    | 6.1/0.018            |

**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 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.
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. LOCTITE STYCAST 2850 MT may be heated at any temperature up to 75°C before catalyst addition to lower viscosity and aid pourability.
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. Usable shelf life may vary depending on method of application and storage conditions

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. Be sure the shipping container is loosely covered during the warming stage to prevent any pressure build-up. Allow contents to cool to room temperature before continuing.

**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 Henkel 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**

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

**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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