

# LOCTITE STYCAST 4350

August 2014

## PRODUCT DESCRIPTION

LOCTITE STYCAST 4350 provides the following product characteristics:

|                                                |                                                                                                                                                                                                            |
|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Technology</b>                              | Silicone                                                                                                                                                                                                   |
| <b>Appearance (Resin)</b>                      | Red liquid                                                                                                                                                                                                 |
| <b>Appearance (Catalyst)</b>                   | Clear liquid                                                                                                                                                                                               |
| <b>Product Benefits</b>                        | <ul style="list-style-type: none"> <li>• Two component</li> <li>• Thermally conductive</li> <li>• Room temperature cure capability</li> <li>• Temperature resistant</li> <li>• Readily pourable</li> </ul> |
| <b>Mix Ratio by weight - Material:Catalyst</b> | 100 / 0.1 to 0.4                                                                                                                                                                                           |
| <b>Cure</b>                                    | Room temperature or Heat cure                                                                                                                                                                              |
| <b>Application</b>                             | Potting or Encapsulant                                                                                                                                                                                     |
| <b>Operating Temperature</b>                   | -65 to +260 °C                                                                                                                                                                                             |

LOCTITE STYCAST 4350 RTV condensation cure, silicone rubber potting compound is designed for potting and encapsulation of components that require dissipation of heat and the high temperature and low stress properties of a silicone compound. It cures to form a flexible, thermally conductive material having excellent electrical properties and high temperature resistance.

LOCTITE STYCAST 4350 can be used with LOCTITE CAT 50-2.

## TYPICAL UNCURED PROPERTIES

### LOCTITE STYCAST 4350

|                                  |        |
|----------------------------------|--------|
| Brookfield Viscosity, mPa·s (cP) | 23,500 |
| Density, g/cm <sup>3</sup>       | 2.1    |
| Flash Point - See SDS            |        |

### LOCTITE CAT 50-2

|                          |     |
|--------------------------|-----|
| Specific Gravity @ 25 °C | 1.1 |
| Flash Point - See SDS    |     |

## TYPICAL UNCURED PROPERTIES AS MIXED

### LOCTITE STYCAST 4350 LOCTITE CAT 50-2

|                                                     |        |
|-----------------------------------------------------|--------|
| Brookfield Viscosity, mPa·s (cP)                    | 23,500 |
| Density, g/cm <sup>3</sup>                          | 2.1    |
| Work Life @ 25 °C, 100 gram mass, minutes           | 60     |
| Shelf Life @ 25 °C (from date of manufacture), days | 152    |
| Flash Point - See SDS                               |        |

## TYPICAL CURING PERFORMANCE AS MIXED

### Cure Schedule

#### LOCTITE STYCAST 4350 with LOCTITE CAT 50-2:

- 16 to 24 hours @ 25°C
- 2 to 4 hours @ 65°C

For optimum performance above 125°C is anticipated, a post cure schedule of 1-2 hours at 25-30°C increments up to the highest expected use temperature is recommended to properly condition the silicone rubber.

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 4350 with LOCTITE CAT 50-2

#### Physical Properties

|                                    |                                       |
|------------------------------------|---------------------------------------|
| Hardness, Shore A                  | 75                                    |
| Glass Transition Temperature, °C   | -55                                   |
| Coefficient of Thermal Expansion : |                                       |
| Below Tg, ppm/°C                   | 118                                   |
| Above Tg, ppm/°C                   | 196                                   |
| Tear Resistance, lbs/inch          | 29                                    |
| Tensile Modulus                    | N/mm <sup>2</sup> 3.04<br>(psi) (440) |
| Elongation, %                      | 133                                   |
| Thermal Conductivity, W/(m·K)      | 0.95                                  |

#### Electrical Properties

|                                                  |                      |
|--------------------------------------------------|----------------------|
| Volume Resistivity @ 25 °C, ohms-cm              | 2.3×10 <sup>14</sup> |
| Dielectric Strength, volts/mil                   | 619                  |
| Dielectric Constant / Dissipation Factor @ 1 MHz | 4.9 / 0.0014         |

## TYPICAL PERFORMANCE OF CURED MATERIAL AS MIXED

### LOCTITE STYCAST 4350 with LOCTITE CAT 50-2

#### Miscellaneous

|                  |                                      |
|------------------|--------------------------------------|
| Tensile Strength | N/mm <sup>2</sup> 3.5<br>(psi) (508) |
|------------------|--------------------------------------|

## GENERAL INFORMATION

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

## 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. This RTV silicone product is based on condensation cure chemistry and will cure in contact with most materials without cure inhibition.
3. This product is not recommended for use in closed molds or sealed molds which could prevent its exposure to moisture or the escape of reaction by-products required to complete the cure.
4. Catalysts used to cure this product may cause corrosion of copper and other sensitive metals.

5. 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.
6. Power mixing is preferred to ensure a homogeneous product.
7. Accurately weigh the liquid RTV silicone and catalyst into a clean container in the recommended ratio.
8. To facilitate the addition of catalyst, the use of a medicine dropper which has been previously calibrated to determine the number of drops per gram is recommended.
9. Working life and cure time are shortened as the amount of catalyst is increased.
10. Low catalyst concentrations are recommended for applications requiring thick sections or use at temperatures in excess of 125 °C.
11. Blend components by hand, using a kneading motion, for 2 to 3 minutes and scrape the bottom and sides of the mixing container frequently to produce a uniform mixture.
12. Scrape the bottom and sides of the mixing container frequently to produce a uniform mixture.
13. If possible, power mix for 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.
14. To ensure a void-free embedment, vacuum deairing or degassing should be performed to remove any entrapped air introduced during the mixing operation.
15. 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.
16. Continue vacuum deairing until most of the bubbling has ceased. This usually takes 3 to 10 minutes.
17. In general, silicone materials exhibit outstanding release properties and will not adhere to most substrates.
18. If adhesion is required, apply a thin, uniform coating of PRIMER S 11 to the desired clean, dry substrates. Allow the PRIMER S 11 to dry for 30-60 minutes at room temperature before applying this silicone material.
19. Pour mixture into cavity or mold.
20. Further vacuum deairing in the mold may be required for critical applications.

#### Storage

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

#### Optimal Storage : 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  
 N/mm x 5.71 = lb/in  
 N/mm² x 145 = psi  
 MPa = N/mm²  
 MPa x 145 = psi  
 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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