Technical Data Sheet

STYCAST 4640

February 2022

PRODUCT DESCRIPTION

LOCTITE STYCAST 4640 provides the following product characteristics:

Technology	Silicone
Appearance (Resin)	Amber liquid
Appearance (Catalyst)	Clear liquid
Product Benefits	• Two components • Lightweight • Temperature resistant • Readily pourable • Room temperature cure capability
Mix Ratio by weight - Material:Catalyst	100 / 0.1 to 0.4
Cure	Room temperature or Heat cure
Application	Potting or Encapsulation
Operating Temperature	-65 to +260 °C

LOCTITE STYCAST 4640 RTV condensation cure silicone rubber syntactic foam is engineered to yield a flexible, low density material with a low dielectric constant and dissipation factor. It is designed for airborne potting, sealing and caulking applications requiring low weight and excellent dielectric properties.

STYCAST 4640 can be used with LOCTITE CAT 50-2 .

TYPICAL UNCURED PROPERTIES

LOCTITE STYCAST 4640

Brookfield Viscosity mPa·s (cP)	45,000
Density, g/cm³	0.75
Shelf Life @ 18 to 25ºC , days	180
Flash Point - See SDS	

LOCTITE CAT 50 AMB

Brookfield Viscosity mPa·s (cP)	85
Flash Point - See SDS	

TYPICAL UNCURED PROPERTIES AS MIXED

LOCTITE STYCAST 4640 with LOCTITE CAT 50 AMB

Brookfield Viscosity mPa·s (cP)	45,000
Density, g/cm³	0.75
Work Life @ 25 °C, 100 gram mass, minutes	60
Flash Point - See SDS	

LOCTITE STYCAST 4640 with LOCTITE CAT 50-2 AMB

Brookfield Viscosity , mPa·s (cP)	45,000
Flash Point - See SDS	

TYPICAL CURING PERFORMANCE

Cure Schedule (As Mixed)

LOCTITE STYCAST 4640 with LOCTITE CAT 50 AMB

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 specific application requirements, as well as customer curing equipment, oven loading and actual oven temperatures.

TYPICAL PROPERTIES OF CURED MATERIAL

LOCTITE STYCAST 4640 with LOCTITE CAT 50 AMB

Physical Properties

Hardness, Shore A	70
Elongation, %	135
Water Absorption, 24-hr boil, %	<0.1

Electrical Properties

Volume Resistivity @ 25°C, ohms-cm	$>1\times10^{14}$
Dielectric Strength, volts/mil	250
Dielectric Constant / Dissipation Factor @ 1 MHz	2.0 / 0.004

LOCTITE STYCAST 4640 with LOCTITE CAT 50-2 AMB

Physical Properties

Hardness, Shore A	64
Elongation, %	51
Glass Transition Temperature, °C	≤50
Coefficient of Thermal Expansion, µm/-mºC:	
Above Tg	193

Electrical Properties

Dielectric Constant / Dissipation Factor :	
@ 50 Hz	3.2/0.266
@ 1 KHz	2.3/0.086
@ 1 MHz	2.1/0.005

TYPICAL PERFORMANCE OF CURED MATERIAL

LOCTITE STYCAST 4640 with LOCTITE CAT 50 AMB

Miscellaneous

Tensile Strength	N/mm²	1.4
	(psi)	(200)

LOCTITE STYCAST 4640 with LOCTITE CAT 50-2 AMB

Miscellaneous

Tensile Strength	N/mm²	1.96
	(psi)	(284)
Tear Strength, Kgf/cm		1,030

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. 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 125ºC.
11. 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.
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13. 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.
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 LOCTITE STYCAST S 11NC PRIMER to the desired clean, dry substrates. Allow the LOCTITE STYCAST S 11NC PRIMER 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: +4°C. Storage below +4°C or above +4°C can adversely affect product properties.

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.

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
N/mm² x 145 = psi
N/mm² = MPa
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

Not for product specifications

The technical data contained herein are intended as reference only. Please contact your local Henkel representative for assistance and recommendations on the specifications of this product.

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