Technical Data Sheet

LOCTITE STYCAST 5954

February 2016

PRODUCT DESCRIPTION

LOCTITE STYCAST 5954 provides the following product characteristics:

Technology	Silicone
Components	Two component - requires mixing
Appearance - Part A	Red liquid
Appearance - Part B	White liquid
Mix Ratio - Part A:Part B	1 : 1
Product Benefits	• High thermal conductivity • Reversion resistant • Non-Corrosive • High electrical insulation • Easy mix ratio
Operating Temperature Range	-65 to +260ºC
Cure	Heat cure
Application	Encapsulant
Typical Assembly Applications	• Bridge rectifiers • Power supplies • Thermistors • Transformers • Thermal Probes • Sensors • Pour-in-place thermal pads • Heat sinks

LOCTITE STYCAST 5954 highly filled, silicone material is designed for encapsulating heat generating devices. It can be cured in thick sections, over a wide range of temperatures.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Part A Properties

Viscosity, Brookfield , mPa·s (cP)	55,000
Density , g/cm³	2.45
Shelf Life @ 25°C (from date of manufacture), days	180
Flash Point - See SDS	

Part B Properties

Viscosity, Brookfield , mPa·s (cP)	15,000
Density , g/cm³	2.45
Shelf Life @ 25°C (from date of manufacture), days	180
Flash Point - See SDS	

Mixed Properties

Mixed Viscosity, Brookfield , mPa·s (cP)	35,000
Mixed Density , g/cm³	2.45
Pot Life, 100 gm mass @ 25 °C, minutes	90
Flash Point - See SDS	

TYPICAL CURING PERFORMANCE

Cure Schedule

20 minutes @ 150°C
1 hour @ 100°C
4 hours @ 65°C
2 to 7 days @ 25°C

For optimum performance, follow the initial cure with a post cure of 2 hours at 175ºC.

This product may be cured in large castings with no adverse heat or exotherm effects. There is essentially no limit on casting size due to shrinkage or exotherm.

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

Physical Properties

Hardness, Shore A	85
Coefficient of Thermal Expansion , TMA, ppm/°C	150
Glass Transition Temperature, DSC/TMA, °C	-120
Thermal Conductivity , W/(m-K)	1.15
Elongation, %	17
Linear Shrinkage, cm/cm	0.002

Electrical Properties

Volume Resistivity @ 25ºC, ohm-cm	$>1\times10^{14}$
Dielectric Strength , kV/mm	17.7
Dielectric Constant / Dissipation Factor@ 1 MHz	5.0/0.01

TYPICAL PERFORMANCE OF CURED MATERIAL

Miscellaneous:

Tensile Strength	N/mm²	2.75
	(psi)	(400)
Tear Strength	N/mm²	875
	(psi)	(5)

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. The cure of this silicone product may be inhibited through contact with certain contaminants.
3. Avoid contact with butyl and chlorinated rubbers, amines, tin containing components, heavy metal salts, sulfur or sulfur containing materials.

4. Substrates in question should be evaluated for compatibility before application of this product.
5. In addition, molds, mixing equipment, oven, and other apparatus that will be used in the preparation and curing of this product should be free of inhibiting contaminants.
6. 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 a homogeneous product.
7. 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.
8. 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.
9. 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.
10. To ensure a void-free embedment, vacuum deairing should be used to remove any entrapped air introduced during the mixing operation.
11. 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.
12. Continue vacuum deairing until most of the bubbling has ceased. This usually takes 3 to 10 minutes.
13. In general, silicone materials exhibit outstanding release properties and will not adhere to most substrates.
14. 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.
15. Pour mixture into cavity or mold.
16. 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 in original, tightly covered containers in clean, dry areas. Storage information may be indicated on the product container labeling.

Optimal Storage: 25°C. Storage below 25°C or greater than 25°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 Technical Service Center or Customer Service Representative.

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

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