

LOCTITE STYCAST ES 4512HF

December 2016

PRODUCT DESCRIPTION

LOCTITE STYCAST ES 4512HF provides the following product characteristics:

Technology	Epoxy
Appearance, Resin (Component A)	Black
Appearance, Hardener (Component B)	white
Components	Two components - requires mixing
Mixing Ratio, by volume Component A: Component B	100 : 106
Mixing Ratio, by weight Component A: Component B	100 : 100
Product Benefits	<ul style="list-style-type: none"> Non-conductive Room temperature cure Halogen free
Application	Potting and Bonding

LOCTITE STYCAST ES 4512HF epoxy system is designed for potting electronic devices.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Part A Properties :

Viscosity, Brookfield - RVF, 25 °C, mPa·s (cP):	
Spindle 7, speed 2 rpm	184,000
Spindle 7, speed 20 rpm	80,000
Filler Content, %	50
Solids Content, %	100
Density @ 25°C, g/cm³	1.57
Flash Point - See SDS	

Part B Properties :

Viscosity, Brookfield - RVF, 25 °C, mPa·s (cP):	
Spindle 5, speed 10 rpm	11,000
Filler Content, %	60
Solids Content, %	100
Density @ 25°C, g/cm³	1.48
Flash Point - See SDS	

Mixed Properties :

Density @ 25°C, g/cm³	1.55
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Miscellaneous - Hysol®:

Pot Life, 300 gm mass, @ 25 °C, minutes	80
Gel Time @ 25 °C, hours	5

TYPICAL CURING PERFORMANCE Recommended Cure

36 to 48 hours @ 25°C

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 :

Coefficient of Thermal Expansion , ASTM D3418:	
Below Tg, ppm/°C	39.7
Above Tg, ppm/°C	177
Glass Transition Temperature, ASTM D3418, °C	40
Linear Shrinkage, %	1
Hardness, Shore D	88
Water Absorption, %:	
24 hours @ 25°C in water	0.13
Peak Exotherm Temp, °C	30

Electrical Properties:

Volume Resistivity, Ω·cm	3.82×10 ¹⁸
Surface Resistivity, Ω	8.12×10 ¹⁷
Dielectric Constant :	
100 Hz	4.029
1 KHz	3.913
1 MHz	3.666

TYPICAL PERFORMANCE OF CURED MATERIAL

Miscellaneous:

Tensile Strength	N/mm²	30
	(psi)	(4,470)
Flexural Strength	N/mm²	55
	(psi)	(7,820)

GENERAL INFORMATION

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

DIRECTIONS FOR USE

1. 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.
2. 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.
3. 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.
4. 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.
5. Apply adhesive to all surfaces to be bonded and join together.
6. In most applications only contact pressure is required.

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

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

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

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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