Technical Data Sheet

LOCTITE STYCAST ES 6003

April 2016

PRODUCT DESCRIPTION

LOCTITE STYCAST ES 6003 provides the following product characteristics:

Technology	Epoxy
Components	Two component - requires mixing
Appearance (Resin)	Black
Appearance (Hardener)	Clear
Appearance (Mixed)	Black
Product Benefits	• Thermally conductive • Room temperature cure • Medium viscosity • Long gel time
Mix Ratio, by weight - Resin : Hardener	100 : 7
Mix Ratio, by volume - Resin : Hardener	5.7 : 1
Cure	Room temperature or Heat cure
Application	Potting and Encapsulating

LOCTITE STYCAST ES 6003 epoxy encapsulant is developed to meet improved thermal cycling specifications.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Resin Properties

Viscosity , mPa·s (cP):	
@ 25°C	92,500
@ 55°C	31,500
Density, lbs/gal	20.2
Shelf Life (from date of manufacture), days	365
Flash Point - See SDS	

Hardener Properties

Viscosity @ 25 °C, mPa·s (cP)	40
Density, lbs/gal	8.0
Shelf Life (from date of manufacture), days	365
Flash Point - See SDS	

Mixed Properties

Mixed Viscosity @ 25 ºC, mPa·s (cP)	7,500
Mixed Density, lbs/gal	18.4
Pot Life @ 25ºC, 200 gram mass, hours	1.5

TYPICAL CURING PERFORMANCE

Gel Time @ 25 °C, 100 gram mass, hours	3 to 4
Recommended Cure Schedule	48 hours @ 25°C
Alternate Cure Schedule	4 hours @ 66°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

Hardness, Shore D	93
Glass Transition Temperature, °C	57
Coefficient of Thermal Expansion :	
Below Tg, -75 to 57 °C, mm/mm/ºC	3.2×10^{-5}
Above Tg, 57 to 175 °C, mm/mm/ºC	1.1×10^{-4}
Thermal Conductivity, W/(m-K)	1.15
Linear Shrinkage, in/in	0.006
Water Absorption (24 hr immersion), %	0.9

Electrical Properties

Volume Resistivity, ohm-cm	1.4×10^{15}
Arc Resistance, seconds	150
Dielectric Strength, volts/mil	390
Dielectric Constant / Dissipation Factor:	
@ 100 Hz	5.3/0.01
@ 1 KHz	5.2/0.01
@ 10 KHz	5.28/0.01
@ 100 KHz	5.1/0.02

TYPICAL CURED PERFORMANCE AS MIXED

Miscellaneous

Compressive Strength	N/mm²	106
	(psi)	(15,500)
Flexural Strength	N/mm²	75
	(psi)	(10,900)

GENERAL INFORMATION

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

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

Liquid Storage - Liquids should be stored at 25°C or below, in closed containers. If stored below 25°C, the material MUST be allowed to come to room temperature, in the sealed container, to avoid moisture contamination.

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

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.
Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Belgium NV, Henkel Electronic Materials NV, Henkel Nederland BV, Henkel Technologies France SAS and Henkel France SA please additionally note the following:
In case Henkel would be nevertheless held liable, on whatever legal ground, Henkel's liability will in no event exceed the amount of the concerned delivery.

In case products are delivered by Henkel Colombiana, S.A.S. the following disclaimer is applicable:
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. 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.
Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Corporation, Resin Technology Group, Inc., or Henkel Canada Corporation, the following disclaimer is applicable:
The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, **Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits.** The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Henkel Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.

Trademark usage
Except as otherwise noted, all trademarks in this document are trademarks of Henkel Corporation in the U.S. and elsewhere. ® denotes a trademark registered in the U.S. Patent and Trademark Office.

Reference 1