Technical Data Sheet

LOCTITE STYCAST ES 4512

November 2021

PRODUCT DESCRIPTION

LOCTITE STYCAST ES 4512 provides the following product characteristics:

Technology	Epoxy
Appearance,Resin (Component A)	Black
Appearance, Hardener (Component B)	Tan
Appearance (cured)	Black
Components	Two components - requires mixing
Mix Ratio by volume: Part A: Part B	100 : 106
Mixing Ratio, by weight Component A: Component B	100 : 100
Cure	Room temperature cure
Application	Potting and Encapsulating

LOCTITE STYCAST ES 4512 is a two-component casting system with excellent handling properties. This low cost, flexible system is filled with a non-abrasive filler for machine metering/dispensing or regular hand mixer applications.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Part A Properties

Density, @ 25°C, g/cm³	1.57
Filler Content, %	50
Solids Content, %	100
Viscosity, Brookfield - RVF, 25 °C, mPa·s (cP):	
Spindle 6, speed 2 rpm	55,000
Spindle 6, speed 20 rpm	28,000

Part B Properties

Density, @ 25°C, g/cm³	1.48
Filler Content, %	60
Solids Content, %	100
Viscosity, Brookfield - RVF, 25 °C, mPa·s (cP):	
Spindle 5, speed 20 rpm	6,300

Mixed Properties

Density, @ 25°C, g/cm³	1.55
Peak Exotherm Temperature, °C:	
200 g mass	90
Pot Life @ 25°C, minutes:	
200 g mass	60
Gel Time @ 25°C, hours	5
Viscosity @ 25 °C, mPa·s (cP)	19,000

TYPICAL CURING PERFORMANCE Recommended Curing Conditions

36 to 48 hours @ 25 °C (Recommended cure)
3 hours @ 60°C (Alternate cure)

TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties :

Glass Transition Temperature, ISO 11357-2, °C		50
Coefficient of Thermal Expansion ASTM D7012, K^{-1}:		
Pre Tg (Alpha 1)		66×10^{-6}
Post Tg (Alpha 2)		150×10^{-6}
Coefficient of Thermal Conductivity, ISO 8302, W/(m-K)		0.644
Linear Shrinkage, ASTM D792, %		0.1
Shore Hardness, ISO 868, Durometer D		88
Water Absorption, ISO 62, %:		
24 hours in water @ 25 °C		0.32
Elongation , ISO 527-2,%		6.3
Tensile Strength Tests - Hysol:		
Tensile Strength, ISO 527-2	N/mm² (psi)	18.4 (2,670)
Compressive Strength, ISO 604	N/mm² (psi)	80.7 (11,700)
Flexural Strength, ISO 178	N/mm² (psi)	34.3 (4,975)
Tear Strength, ISO 34-2, Die D	N/mm (lb./in.)	42.0 (240)

Electrical Properties:

Dielectric Breakdown Strength IEC 60243-1, kV/mm	44.7
Volume Resistivity, IEC 60093, Ω·cm:	
@ 25 °C	5.9×10^{14}
@ 105 °C	2.8×10^{10}
Surface Resistivity, IEC 60093, Ω:	
@ 25 °C	3.0×10^{15}
@ 105 °C	1.8×10^{15}
Dielectric Constant / Dissipation Factor, IEC 60250:	
@ 25 °C:	
100 Hz	4.6 / 0.038
1 kHz	4.4 / 0.03
10 kHz	4.3 / 0.026
100 kHz	4.1 / 0.023
@ 105 °C:	
100 Hz	35.7 / 1.43
1 kHz	9.2 / 0.5
10 kHz	7.8 / 0.1
100 kHz	7.2 / 0.08

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 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
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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Reference N/A