Hysol®

HYSOL® ES2200™

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PRODUCT DESCRIPTION

HYSOL® ES2200™ provides the following product characteristics:

Technology	Epoxy
Appearance (cured)	Amber
Components	Two component - requires mixing
Mix Ratio, by volume - Part A: Part B	100 : 13
Mix Ratio, by weight - Part A: Part B	100 : 11
Cure	Heat cure
Application	Potting and Encapsulating

HYSOL® ES2200™ is an undiluted epoxy 100% solids system and should be used where very low mixed viscosity is not a critical requirement. The undiluted resin exhibits a higher heat distortion, lower moisture absorption, lower shrinkage and lower expansion characteristics than obtainable with a diluted resin.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Part A Properties

Color	Gardner 4
Density, @ 25 °C, g/cm³	1.16
Viscosity, Brookfield - RVF, 25 °C, cP:	
Spindle 5, speed 10 rpm	11,000 to 14,000

Part B Properties

Color	Gardner 2
Density, @ 25 °C, g/cm³	0.98
Viscosity, Brookfield - RVF, 25 °C, cP:	
Spindle 1, speed 2 rpm	20 to 30

Mixed Properties

Pot Life @ 25 °C, minutes:	
200 g mass	20
Peak Exotherm Temperature, °C:	
200 g mass	150
Viscosity @ 25 °C, cP	3,000

TYPICAL CURING PERFORMANCE

Recommended Curing Conditions

2 hours @ 60 °C (Recommended cure)
24 hours @ 22 °C (Alternate cure)

TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Coefficient of Linear Thermal Expansion, ppm/ºC:	
Pre Tg (Alpha 1)	68
Post Tg (Alpha 2)	194
Thermal Conductivity, W/mk	0.188
Shore Hardness , Durometer D	85
Density, @ 25 °C, g/cm³	1.66
Linear Shrinkage, %	0.7
Heat Deflection Temperature @ 1.8 N/mm² , °C	100
Izod Impact Strength, N/mm of notch	0.04
24 Hour Water Moisture Absorption, %	0.14
Guide to Operating Class, IEEE °C	105
Tensile Elongation, %	2.6
Tensile Strength, psi	9,200
Compressive Strength, psi	16,000
Flexural Strength, psi	19,400

Electrical Properties:

Dielectric Strength, 10 mils thickness, volts/mil	1,500
Arc Resistance, seconds	107
Volume Resistivity, ohm/cm @ 25ºC	4×10^{16}
Volume Resistivity, ohm/cm @ 105ºC	5×10^{15}
Dielectric Constant / Dissipation Factor @ 25ºC:	
100 Hz	3.9 / 0.007
1 kHz	3.8 / 0.007
100 kHz	3.5 / 0.024
Dielectric Constant / Dissipation Factor @ 105ºC:	
100 Hz	4.2 / 0.024
1 kHz	4.1 / 0.012
100 kHz	4.0 / 0.01

GENERAL INFORMATION

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

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.

Note: Before using this product please purge approximately 30 ml. of material prior to application. Discard purged material in accordance with the Material Safety Data Sheet. A video instruction is available upon request.

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 23°C or below, in closed containers. If stored below 23°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
N/mm² x 145 = psi
MPa x 145 = psi
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

Note
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Reference 1.1