HYSOL® ES2202™

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PRODUCT DESCRIPTION

HYSOL® ES2202™ provides the following product characteristics:

Technology	Epoxy
Appearance (cured)	Amber
Components	Two component - requires mixing
Mix Ratio, by volume - Part A: Part B	100 : 28
Mix Ratio, by weight - Part A: Part B	100 : 25
Cure	Heat cure
Application	Potting and Encapsulating

HYSOL® ES2202™ is an unfilled epoxy system with a high operating temperature and long pot life. It is recommended for use where excellent chemical resistance, high heat distortion temperature and good electrical properties under high humidity conditions are required. This product is recommended for servo stators, high temperature resistors, transformers, and high temperature cast shapes.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Part A Properties

Color , maximum	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	Dark Red
Density, @ 25 °C, g/cm³	1.0 to 1.05
Viscosity, Brookfield - RVF, 25 °C, cP:	
Spindle 2, speed 20 rpm	450 to 650

Mixed Properties

Pot Life @ 25 °C, hours:	
200 g mass	7 to 8
Gel Time @ 40 °C, hours:	
200 g mass	4 to 5
Gel Time @ 100 °C, hours:	
200 g mass	55 to 65
Gel Time @ 121 °C, minutes:	
10 g mass	20 to 30
Viscosity @ 25 °C, cP:	
Spindle , speed r/min	8,000 to 12,000

TYPICAL CURING PERFORMANCE

Recommended Curing Conditions

2 hours @ 80 °C plus 2 hours @ 150 °C

TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Coefficient of Thermal Expansion, ppm/ºC:	
Pre Tg (Alpha 1)	65
Glass Transition Temperature, °C	140
Coefficient of Thermal Conductivity, W/(m·K)	0.188
Shore Hardness , Durometer D	80 to 85
Linear Shrinkage, %	0.7
Guide to Operating Class, IEEE °C	155 to 180
24 Hour Water Moisture Absorption, %	0.11
Tensile Strength, psi	8,000 to 10,000
Compressive Strength, psi	20,000 to 25,000
Flexural Strength, psi	15,000 to 20,000

Electrical Properties:

Dielectric Strength, 10 mils thickness, volts/mil	1,650
Arc Resistance, seconds	110
Volume Resistivity, ohm/cm @ 25ºC	1×10^{17}
Volume Resistivity, ohm/cm @ 85ºC	4×10^{14}
Volume Resistivity, ohm/cm @ 130ºC	1×10^{14}
Surface Resistivity, ohms @ 25ºC	8×10^{16}
Surface Resistivity, ohms @ 85ºC	4×10^{15}
Surface Resistivity, ohms @ 130ºC	1×10^{14}
Dielectric Constant / Dissipation Factor @ 25ºC:	
100 Hz	4.3 / 0.005
1 kHz	4.3 / 0.009
10 kHz	4.2 / 0.022
100 kHz	4.0 / 0.033
Dielectric Constant / Dissipation Factor @ 85ºC:	
100 Hz	4.4 / 0.002
1 kHz	4.4 / 0.003
10 kHz	4.4 / 0.004
100 kHz	4.3 / 0.009
Dielectric Constant / Dissipation Factor @ 130ºC:	
100 Hz	4.4 / 0.003
1 kHz	4.4 / 0.003
10 kHz	4.4 / 0.003
100 kHz	4.4 / 0.002

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