



HYSOL[®] ES1003[™]

April 2008

PRODUCT DESCRIPTION

HYSOL[®] ES1003[™] provides the following product characteristics:

Technology	Epoxy
Appearance (Part A)	Tan
Appearance (Part B)	Amber
Appearance (cured)	Tan
Components	Two component - requires mixing
Mix Ratio, by volume - Part A: Part B	100 : 30
Mix Ratio, by weight - Part A: Part B	100 : 21
Cure	Heat cure
Application	Potting and Encapsulating

HYSOL[®] ES1003[™] is a filled, low viscosity, impregnating system having excellent electrical and physical properties. It is recommended for impregnation of transformers and coils. Its low viscosity allows for excellent impregnation of fine wires. HYSOL[®] ES1003[™] offers improved thermal properties, lower shrinkage, and lower expansion characteristics.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Part A Properties

Filler Content, %	65
Specific Gravity @ 25°C	1.77
Viscosity, Brookfield - RVF, cP:	
Spindle 6, speed 10 rpm	150,000

Part B Properties

Specific Gravity @ 25 °C	1.22
Viscosity, Brookfield - RVF, 25 °C, cP:	
Spindle 1, speed 2 rpm	200

Mixed Properties

Pot Life @ 25 °C, hours:	
200 g mass	8
Viscosity @ 25 °C, cP	20,000

TYPICAL CURING PERFORMANCE

Recommended Curing Conditions

2 hours @ 110 °C (Recommended cure)	
1 hour @ 125 °C (Alternate cure)	

TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Filler Content, %	53
Coefficient of Thermal Expansion, ppm/°C:	
Pre Tg (Alpha 1)	43
Post Tg (Alpha 2)	115
Glass Transition Temperature (Tg), °C	142
Specific Gravity @ 25 °C	1.65

Compressive Strength, psi	25,130
Flexural Strength, psi	14,400
Tensile Strength, psi	8,700
Tensile Elongation, %	1.0
Linear Shrinkage, %	0.45
Shore Hardness, Durometer D	94
Thermal Conductivity, W/mk	0.42
24 Hour Water Moisture Absorption, %	0.088
Volumetric Shrinkage, %	2.44

Electrical Properties:

Arc Resistance, seconds	153
Dielectric Strength, 10 mils thickness, volts/mil	1,415
Volume Resistivity, ohm/cm @ 25°C	1×10 ¹⁶
Volume Resistivity, ohm/cm @ 130°C	1×10 ¹⁴
Surface Resistivity, ohms @ 25°C	1×10 ¹⁶
Surface Resistivity, ohms @ 130°C	1×10 ¹⁵
Dielectric Constant / Dissipation Factor @ 25°C:	
100 Hz	3.9 / 0.011
1 kHz	3.9 / 0.007
10 kHz	3.8 / 0.008
100 kHz	3.8 / 0.012
Dielectric Constant / Dissipation Factor @ 130°C:	
100 Hz	3.9 / 0.015
1 kHz	3.8 / 0.008
10 kHz	3.8 / 0.006
100 kHz	3.8 / 0.006

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.

Optimal Storage: 20 °C to 30 °C. Storage below 20 °C or greater than 30 °C can adversely affect product properties. 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

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

Note

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Reference 1.2