



HYSOL[®] ES0615[™]

April 2008

PRODUCT DESCRIPTION

HYSOL[®] ES0615[™] 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[®] ES0615[™] 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/cm ³	1.15 to 1.17
Viscosity, Brookfield - RVF, 25 °C, mPa·s (cP):	
Spindle 5, speed 10 rpm	11,000 to 14,000

Part B Properties

Color	Dark Red
Density, @ 25 °C, g/cm ³	1.0 to 1.05
Viscosity, Brookfield - RVF, 25 °C, mPa·s (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, mPa·s (cP):	
Spindle 4, speed 2 rpm	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 ASTM D7012, K ⁻¹ :	
Pre Tg (Alpha 1)	65×10 ⁻⁶

Glass Transition Temperature, °C	140
Coefficient of Thermal Conductivity, ASTM C177, W/(m·K)	0.188
Shore Hardness, ISO 868, Durometer D	80 to 85
Linear Shrinkage, ASTM D792, %	0.7
Guide to Operating Class, IEEE °C	155 to 180
Water Absorption, ISO 62, %:	
24 hours in water @ 25 °C	0.11
Tensile Strength, ISO 527-2	N/mm ² 55.2 to 69.0 (psi) (8,000 to 10,000)
Compressive Strength, ISO 604	N/mm ² 137.9 to 172.4 (psi) (20,000 to 25,000)
Flexural Strength, ISO 178	N/mm ² 103.4 to 137.9 (psi) (15,000 to 20,000)

Electrical Properties:

Dielectric Breakdown Strength, IEC 60243-1, kV/mm	65
Arc Resistance, ASTM D495, seconds	110
Volume Resistivity, IEC 60093, Ω·cm:	
@ 25 °C	1×10 ¹⁷
@ 85 °C	4×10 ¹⁴
@ 130 °C	1×10 ¹⁴
Surface Resistivity, IEC 60093, Ω:	
@ 25 °C	8×10 ¹⁶
@ 85 °C	4×10 ¹⁵
@ 130 °C	1×10 ¹⁴
Dielectric Constant / Dissipation Factor, IEC 60250:	
@ 25 °C:	
100 Hz	4.3 / 0.005
1 kHz	4.3 / 0.009
10 kHz	4.2 / 0.022
100 kHz	4.0 / 0.033
@ 85 °C:	
100 Hz	4.4 / 0.002
1 kHz	4.4 / 0.003
10 kHz	4.4 / 0.004
100 kHz	4.3 / 0.009
@ 130 °C:	
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.



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

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 0.0