



# ES1004™

April 2008

## PRODUCT DESCRIPTION

ES1004™ provides the following product characteristics:

<b>Technology</b>	Epoxy
Appearance (Part A)	Black
Appearance (Part B)	Dark red
Appearance (cured)	Black
Components	Two component - requires mixing
Mix Ratio, by volume - Part A: Part B	4 : 1
Mix Ratio, by weight - Part A: Part B	100 : 13
<b>Cure</b>	Heat cure
<b>Application</b>	Potting and Encapsulating

Casting compound, ES1004™ has been formulated to meet the needs for flame-out, easily handled casting systems. The cured system is non-burning of self-extinguishing according to ASTM D 635 and meets UL requirements for 94V-0.

## TYPICAL PROPERTIES OF UNCURED MATERIAL

### Part A Properties

Filler Content, %	40
Specific Gravity @ 25°C	1.69
Viscosity, Brookfield - RVF, cP: Spindle 6, speed 20 rpm	30,000

### Part B Properties

Specific Gravity @ 25 °C	1.025
Viscosity, Brookfield - RVF, 25 °C, cP: Spindle 2, speed 20 rpm	550

### Mixed Properties

Pot Life @ 25 °C, hours:	8
200 g mass	
Viscosity @ 25 °C, cP	26,000

## TYPICAL CURING PERFORMANCE

### Recommended Curing Conditions

2 hours @ 80 °C plus 2 hours @ 150 °C

## TYPICAL PROPERTIES OF CURED MATERIAL

### Physical Properties:

Coefficient of Linear Thermal Expansion, ppm/°C:	
Below Tg	62
Glass Transition Temperature, °C	110
Density, lb/cu in.	1.28
Linear Shrinkage, %	1.19
Flammability, UL 94	V-0
Shore Hardness, Durometer D	88
Tensile Strength, psi	7,300
Tensile Elongation, %	1.5
Flexural Strength, psi	11,300
24 Hour Water Moisture Absorption, %	0.09

### Electrical Properties:

Volume Resistivity, ohm/cm @ 25°C	1×10 <sup>16</sup>
Volume Resistivity, ohm/cm @ 85°C	2×10 <sup>14</sup>

Surface Resistivity, ohms @ 25°C	1×10 <sup>16</sup>
Surface Resistivity, ohms @ 85°C	1×10 <sup>15</sup>
Dielectric Constant / Dissipation Factor @ 25°C:	
100 Hz	4.4 / 0.012
1 kHz	4.3 / 0.011
10 kHz	4.3 / 0.014
Dielectric Constant / Dissipation Factor @ 85°C:	
100 Hz	4.8 / 0.032
1 kHz	4.7 / 0.02
10 kHz	4.6 / 0.015

## 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