

## LOCTITE ECI 5003 E&C

March 2013

### PRODUCT DESCRIPTION

LOCTITE ECI 5003 E&C provides the following product characteristics:

<b>Technology</b>	Thermoplastic
<b>Appearance</b>	Gray
<b>Product Benefits</b>	<ul style="list-style-type: none"> <li>• Low temperature cure</li> <li>• No need for laser etching</li> <li>• Screen printable</li> </ul>
<b>Cure</b>	Heat cure
<b>Application</b>	Conductive Ink
<b>Typical Assembly Applications</b>	Capacitive Switch, Resistive and capacitive touch pads, Electroluminescent lamps and ITO replacement

LOCTITE ECI 5003 E&C is a screen printable conductive ink . LOCTITE ECI 5003 E&C is designed to leave a transparent conductive film when cured that can be used as a replacement for sputtered ITO film.

### TYPICAL PROPERTIES OF UNCURED MATERIAL

Solids Content (30 minutes @ 150°C), %	3.0
Viscosity by Rheometer, mPa·s (cP)	225
Shelf Life @ 25°C (from date of manufacture), days	183
Flash Point - See MSDS	

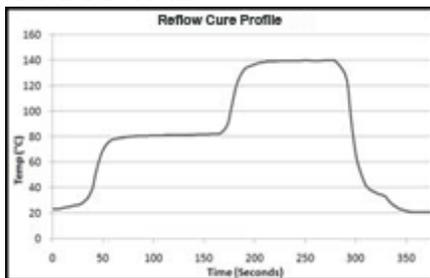
### TYPICAL SCREEN PRINTING PROCESS

<b>Recommended Print Speed</b>	
Print Speed, inch(es) per second	15
<b>Recommended Screen Type</b>	
Polyester screen , mesh	305 or 355
<b>Recommended Squeegee</b>	
Polyurethane , durometer	85 to 90

### TYPICAL CURING PERFORMANCE

**Recommended Cure Schedule**  
3 minutes @ 85°C plus 5 minutes @ 140°C

#### Reflow Cure Profile



This material incorporates a two stage cure system. It is important for the printed inks to go directly into the oven after printing.

Parts racked and left out of the oven before curing will tend to separate and "fisheye", showing a non-uniform looking finish.

The above cure profiles are guideline recommendations. Cure conditions (time and temperature) may vary based on customers' experience and their application requirements, as well as customer curing equipment, oven loading and actual oven temperatures.

### TYPICAL PROPERTIES OF CURED MATERIAL

#### Physical Properties

Transparency, UV-vis spectrometer, %	≥90
Haze, %	9

#### Electrical Properties

Sheet Resistance , Printed on 305 mesh, ohms/sq	<100
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### GENERAL INFORMATION

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

### DIRECTIONS FOR USE

#### Mixing/Dilution

1. LOCTITE ECI 5003 E&C is supplied ready for use and does not require dilution.
2. Mix prior to use. There may be soft settling in the container that needs to be brought back into suspension before use.
3. Mix smoothly from bottom of container , careful not to whip air in to the product. Using a plastic spatula will decrease the possibility of introducing plastic grindings from the container sidewalls into the product, possibly clogging the screens.

#### Application

1. Pour enough ink on the screen to last approximately 10 minutes of printing at a time. Adding more will cause excess solvent evaporation on the screen, affecting the coating thickness as well as the transparency.
2. A number of factors including screen mesh size, squeegee material and emulsion thickness influence the dried film's thickness, final resistance and transparency.

### 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.

## Clean-up

The equipment can be cleaned with Isopropanol or Acetone.

## Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

**Optimal Storage: 25°C. Storage below 15°C or above 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

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

## Disclaimer

### Note:

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product.

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