

# LOCTITE ECI 7004LR E&C

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## PRODUCT DESCRIPTION

LOCTITE ECI 7004LR E&C provides the following product characteristics:

<b>Technology</b>	Thermoplastic
<b>Appearance</b>	Black
<b>Filler Type</b>	Carbon
<b>Cure</b>	Heat cure
<b>Operating Temperature-Maximum</b>	100°C
<b>Product Benefits</b>	<ul style="list-style-type: none"> <li>• Screen printable</li> <li>• Excellent screen residence time</li> <li>• Flexible low temperature drying cycles</li> </ul>
<b>Application</b>	Conductive Ink
<b>Typical Assembly Applications</b>	Force sensitive modules, Printed resistors and Sensing devices
<b>Key Substrates</b>	Treated polyester and Polyimide

LOCTITE ECI 7004LR E&C screen printable ink is specifically designed for blending with NCI 7002 E&C to provide exceptional resistance in the production of low voltage circuitry on polyester film. The blend is suitable for the manufacturing of force sensors with fast responsive sensitivity profiles.

## TYPICAL PROPERTIES OF UNCURED MATERIAL

Solids Content by Weight, %	27
Viscosity, Brookfield, mPa·s (cP): Speed 20 rpm, @ 20°C	25,000
Density, kg/cm <sup>3</sup>	1,100
Shelf Life @ 5 to 30°C (from date of manufacture), days	365
Flash Point DIN 53213°C	78

## TYPICAL SCREEN PRINTING PROCESS

<b>Emulsion Thickness</b>	
Emulsion Thickness, µm	20 to 40
<b>Recommended Squeegee</b>	
Polyurethane, durometer	70 to 75
<b>Recommended Screen Type</b>	
Monofilament polyester screen, threads/cm	61 to 90
Stainless steel screen, threads/cm	77 to 110
<b>Printing Equipment Type</b>	
Manual	
Semi-automatic	
High speed reel-to-reel	

## TYPICAL CURING PERFORMANCE

### Recommended Drying Conditions

5 to 10 minutes @ 120°C

Blends of LOCTITE ECI 7004LR E&C and LOCTITE NCI 7002 E&C can be dried in conventional air circulated ovens.

Higher temperatures will shorten the drying time and will lead to more stable resistance values.

For high speed production, jet drying, infra-red drying and drying in high speed reel-to-reel equipment can be used.

The above cure profile is a guideline recommendation. 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

Coverage @ 10µm dry coating thickness, m <sup>2</sup> /kg wet product	12
Adhesion, grade	5B

### Electrical Properties

#### Sheet Resistivity

Blending ratios of LOCTITE ECI 7004LR E&C and LOCTITE NCI 7002 E&C, Dried 5 minutes @ 120°C, ohms/sq

LOCTITE ECI 7004LR E&C (% by weight)	LOCTITE NCI 7002 E&C (% by weight)	@ 25µm dry coating thickness
100	0	35
90	10	50
80	20	70
70	30	105
60	40	170
50	50	290
40	60	675
30	70	2160
25	75	4500
20	80	35,000
10	90	> 1e9

## GENERAL INFORMATION

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

**DIRECTIONS FOR USE**

1. LOCTITE ECI 7004LR E&C is supplied ready for use and does not require dilution.
2. Stir LOCTITE ECI 7004LR E&C prior to each use.
3. When mixing with LOCTITE NCI 7002 E&C, use a stirrer.
4. If dilution is necessary, use 2-butoxy ethyl acetate (butylglycol acetate).
5. If a gel structure forms after extended storage, the product may be warmed slightly in a water bath (not exceeding 50°C) and stirred. Very often, stirring is enough to obtain a proper viscosity again.

**Clean-up**

To clean screen and equipment, use Methyl ethyl ketone (MEK), MIBK, Acetone or similar solvents

**Storage**

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

**Optimal Storage : 5 to 30 °C**

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.

**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.

**Conversions**

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$

$\text{kV/mm} \times 25.4 = \text{V/mil}$

$\text{mm} / 25.4 = \text{inches}$

$\text{N} \times 0.225 = \text{lb}$

$\text{N/mm} \times 5.71 = \text{lb/in}$

$\text{psi} \times 145 = \text{N/mm}^2$

$\text{MPa} = \text{N/mm}^2$

$\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$

$\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$

$\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$

$\text{mPa}\cdot\text{s} = \text{cP}$

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Reference 0.1