

# LOCTITE NCI 7002 E&C

March 2016

## PRODUCT DESCRIPTION

LOCTITE NCI 7002 E&C provides the following product characteristics:

<b>Technology</b>	Thermoplastic
<b>Appearance</b>	Black
<b>Cure</b>	Heat cure
<b>Maximum Operating Temperature</b>	100°C
<b>Product Benefits</b>	<ul style="list-style-type: none"> <li>• Non-conductive</li> <li>• Screen printable</li> <li>• Flexible resistive</li> <li>• Excellent screen residence time</li> <li>• Flexible low temperature drying cycles</li> <li>• Good adhesion</li> </ul>
<b>Application</b>	Non-conductive Ink
<b>Typical Assembly Applications</b>	<ul style="list-style-type: none"> <li>• Printed resistors</li> <li>• Sensing devices</li> <li>• Heating elements</li> <li>• Protection against electrostatic discharge (ESD)</li> </ul>
<b>Key Substrates</b>	Treated polyester and Polyimide

LOCTITE NCI 7002 E&C screen printable ink is specifically designed for blending with LOCTITE ECI 7004HR E&C and LOCTITE ECI 7004LR E&C printable ink to provide a range of resistance values

## TYPICAL PROPERTIES OF UNCURED MATERIAL

Solids Content, %	37.5 to 40.0
Viscosity, Brookfield , mPa·s (cP):	
Speed 20 rpm, @ 20°C	10,000 to 25,000
Density, kg/cm <sup>3</sup>	1,270
Theoretical coverage, m <sup>2</sup> /kg:	
@ 10µm dry coating thickness	14
Shelf Life @ 5 to 30°C , year:	
From date of qualification in original seal	1
Flash Point DIN 53213, °C	78

## TYPICAL SCREEN PRINTING PROCESS

Blends of LOCTITE NCI 7002 E&C and LOCTITE ECI 7004HR E&C and LOCTITE ECI 7004LR E&C are applied by standard screen printing techniques.

<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

## Printing Equipment Type

Manual  
Semi-automatic  
High speed reel-to-reel

## TYPICAL CURING PERFORMANCE

### Recommended Drying Conditions

5 to 10 minutes @ 120°C

Blends of LOCTITE NCI 7002 E&C and LOCTITE ECI 7004HR E&C and LOCTITE ECI 7004LR 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

Adhesion, grade 5B  
Theoretical Coverage @ 10µm dry coating thickness, m<sup>2</sup> /kg 14

### Electrical Properties

Sheet Resistivity  
Blending ratios of LOCTITE NCI 7002 E&C and LOCTITE ECI 7004HR E&C

LOCTITE ECI 7004HR E&C (% by weight)	LOCTITE NCI 7002 E&C (% by weight)	Sheet Resistivity (ohms/sq/mil)
100	0	3,500
90	10	5,800
80	20	10,100
70	30	17,300
60	40	33,600
50	50	96,000
40	60	360,000
30	70	Not conductive

Blending ratios of LOCTITE NCI 7002 E&C and LOCTITE ECI 7004LR E&C

LOCTITE ECI 7004LR E&C (% by weight)	LOCTITE NCI 7002 E&C (% by weight)	Sheet Resistivity (ohms/sq/mil)
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 Safety Data Sheet, (SDS).

## DIRECTIONS FOR USE

- LOCTITE NCI 7002 E&C is supplied ready for use. Should thinning become necessary, use 2-butoxy ethyl acetate (butylglycol acetate).
- 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 Methyleneketone (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

(°C x 1.8) + 32 = °F  
 kV/mm x 25.4 = V/mil  
 mm / 25.4 = inches  
 N x 0.225 = lb  
 N/mm x 5.71 = lb/in  
 psi x 145 = N/mm<sup>2</sup>  
 MPa = N/mm<sup>2</sup>  
 N·m x 8.851 = lb·in  
 N·m x 0.738 = lb·ft  
 N·mm x 0.142 = oz·in  
 mPa·s = 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.

Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

**In case products are delivered by Henkel Belgium NV, Henkel Electronic Materials NV, Henkel Nederland BV, Henkel Technologies France SAS and Henkel France SA please additionally note the following:**

In case Henkel would be nevertheless held liable, on whatever legal ground, Henkel's liability will in no event exceed the amount of the concerned delivery.

**In case products are delivered by Henkel Colombiana, S.A.S. the following disclaimer is applicable:**

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. 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.

Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

**In case products are delivered by Henkel Corporation, Resin Technology Group, Inc., or Henkel Canada Corporation, the following disclaimer is applicable:**

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 and/or registered trademarks of Henkel and its affiliates in the U.S. and elsewhere.

Reference 1