Technical Data Sheet

LOCTITE® NCI 7002

January 2025

PRODUCT DESCRIPTION

LOCTITE® NCI 7002 provides the following product characteristics:

Technology	Thermoplastic
Appearance	Black
Product benefits	• Non-conductive • Screen printable • Flexible resistive • Excellent screen residence time • Flexible low temperature drying cycles • Good adhesion
Operating temperature	max 100°C
Cure	Heat drying
Application	Non-conductive ink
Typical assembly applications	• Printed resistors • Sensing devices • Heating elements • Protection against electrostatic discharge (ESD)
Key substrates	PET, PEN, PI, Paper

LOCTITE® NCI 7002 is a black non-conductive ink that can be blended with the LOCTITE® ECI 7004LR E&C and LOCTITE® ECI 7004HR E&C to adjust the resistance to the required level. The product and blends can be applied by screen printing. It is often used to print force sensitivity resistors, and printed resistors onto polyester foil.

TYPICAL PROPERTIES OF UNDRIED MATERIAL

Solid content, (wt%)	39
Viscosity, Brookfield RVT, @ 25°C, after 1 min, mPa.s (cP) Speed @ 20 rpm	18,000
Density, kg/cm^3	1,270
Theoretical coverage, m^2/kg @ 10 µm 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 and LOCTITE® ECI 7004HR E&C and LOCTITE® ECI 7004LR E&C are applied by standard screen printing techniques.

Emulsion thickness

Emulsion thickness, µm	20 to 40

Recommended squeegee

Polyurethane, durometer	70 to 75

Recommended screen type

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 DRYING PERFORMANCE

Recommended drying cycle

10 minutes @ 120°C

Blends of LOCTITE® NCI 7002 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 drying profile is a guideline recommendation. Conditions (time and temperature) may vary based on customers' experience and their application requirements, as well as customer drying equipment, oven loading and actual oven temperatures.

TYPICAL PROPERTIES OF THE DRIED MATERIAL

Physical properties

Adhesion, grade	5B

Electrical properties

Sheet resistance, 4-point probe, Ohm/sq/25µm	not conductive

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

LOCTITE® ECI 7004HR E&C (% by weight)	LOCTITE® NCI 7002 (% by weight)	Sheet resistance, (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 (% by weight)	Sheet resistance, (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	>1 x 10^9

GENERAL INFORMATION
For safe handling information on this product, consult the Safety Data Sheet (SDS).

Directions for use

1. LOCTITE® NCI 7002 is supplied ready for use. Should dilution be necessary, use butyl glycol acetate (CAS: 112-07-2). Henkel recommends a maximum of 10 wt%. This should be accomplished by adding solvent at 0.5 wt% intervals until desired viscosity is achieved.
2. If a gel structure forms after extended storage, the product may be warmed slightly in a water bath (not exceeding 50°C) and stirred with a mechanical stirred. Very often, stirring is enough to obtain a proper viscosity again.
3. Blending with LOCTITE® ECI 7004LR or LOCTITE® ECI 7004HR should be performed with a mechanical propeller mixer for the entire jar volume. Avoid rapid stirring as this causes air entrapment.

Clean-up

The screen and equipment can be cleaned with dilution solvent, or esters (butylacetate, propylacetate, or ethylacetate), or ketones (MEK, 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 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 Henkel 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 the specifications of this product.

Conversions
(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
µm / 25.4 = mil
N x 0.225 = lb
N/mm x 5.71 = lb/in
N/mm² x 145 = psi
MPa x 145 = psi
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

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