Technical Data Sheet

LOCTITE ECI 7004HR E&C

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PRODUCT DESCRIPTION

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

Technology	Thermoplastic
Appearance	Black
Filler Type	Carbon
Product Benefits	• High resistivity • Screen printable • Flexible low temperature drying cycles
Maximum Operating Temperature	100ºC
Cure	Heat cure
Application	Conductive Ink
Typical Assembly Applications	Force sensitive modules, Printed resistors and Sensing devices
Key Substrates	Treated polyester, Polyimide

LOCTITE ECI 7004HR E&C is a water-based, conductive carbon ink specially formulated for high speed printing techniques. The blend is suitable for the manufacturing of force sensors with slow responsive sensitivity profiles.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Solids Content, %	21.4
Density, g/cm³	1.09
Viscosity, Brookfield , 20 °C, mPa·s (cP):	
Speed 20 rpm, after 15 minutes	10,250
Flash Point, ºC	78

TYPICAL SCREEN PRINTING PROCESS

Emulsion Thickness

Emulsion Thickness , µm	20 to 40

Recommended Squeegee

Polyurethane , durometer	70 to 75

Recommended Screen Type

Monofilament polyester, 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 Cycle

5 to 10 minutes @ 120°C

LOCTITE ECI 7004HR E&C mixed with LOCTITE NCI 7002 E&C can be dried using forced air or infrared systems. Higher temperatures for longer time exposure will improve the performance. Care should be taken with infrared. Too much energy can destroy the coating. Design drying rates for the maximum the substrate and production speeds can tolerate.

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 CURED MATERIAL

Physical Properties

Adhesion on treated PET, grade	5B
Coverage @ 10µm thickness, m² /kg	19.4

Electrical Properties

Sheet Resistivity, ohm/sq/mil:	
After 5 minutes @ 120ºC	3,500

Sheet Resistivity

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

If used in China, the amount of LOCTITE ECI 7004HR E&C in the blend with LOCTITE NCI 7002 E&C should be equal or less than 70 % by weight to ensure compliance with VOC regulations.

GENERAL INFORMATION

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

DIRECTIONS FOR USE

1. LOCTITE ECI 7004HR E&C is supplied ready for use and does not require dilution.
2. Stir LOCTITE ECI 7004HR 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 50ºC) and stirred. Very often, stirring is enough to obtain a proper viscosity again.

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.

Storage

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

Optimal Storage : 20 to 25 °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 Henkel Representative.

Conversions

(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
N x 0.225 = lb/F
N/mm x 5.71 = lb/in
psi x 145 = N/mm²
MPa = N/mm²
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:

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