

LOCTITE® ECI 1011 E&C

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PRODUCT DESCRIPTION

LOCTITE® ECI 1011 E&C provides the following product characteristics:

Technology	Thermoplastic
Appearance	Gray paste
Filler type	Silver
Product benefits	• High conductivity • Small particle size • Excellent adhesion • Suitable for flexographic printing • Suitable for rotogravure printing • Suitable for screen printing applications
Operating temperature	max. 105°C
Cure	Heat drying and heat sintering
Application	Conductive ink
Typical assembly applications	• UHF and HF antenna assembly • Printed circuits and other conductive circuit applications
Key substrates	PET, PI, PEN, Paper

LOCTITE® ECI 1011 E&C is a silver ink, which is characterized by good adhesion and very high conductivity. The particle size of LOCTITE® ECI 1011 E&C is below 2 µm. Therefore, it will partially sinter during the drying process and the appearance of the coating is very smooth and shiny. Within the Henkel product portfolio, LOCTITE® ECI 1011 E&C is the most conductive silver ink with a resistance level of ±3 mOhm/sq/25µm. This product is suitable for screen printing but flexo and gravure printing is possible too. Drying/sintering is also possible with Adphos NIR equipment.

TYPICAL PROPERTIES OF UNDRIED MATERIAL

Particle size, µm	<2
Solid content, wt %	76
Density, g/ml	3
Viscosity, Rheometer, at 25°C; mPa.s (cP)	
Shear rate 1.5s ⁻¹	7,500
Thixotropic index (1.5/15 s ⁻¹)	2.5
Theoretical coverage, @ 10 µm dry film thickness, m²/kg	10
Shelf life @ 20°C, days	365
Flash point - see SDS	

TYPICAL PROPERTIES OF THE DRIED MATERIAL

Recommended drying cycle
10 minutes @ 150°C

LOCTITE® ECI 1011 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.

Physical properties

Adhesion on PET, Cross Hatch, ASTM 3359, grade 5B

Electrical properties

Sheet resistance, 10 minutes at 150°C, Ohm/sq/25µm 0.0029

GENERAL INFORMATION

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

Directions for use

1 Surface preparation

- Clean surface thoroughly prior to application.

2 Mixing/Dilution

- Mix thoroughly before use to ensure the entire ink volume is homogenous. A slow speed propeller may be utilized to mix until product is uniform.
- Should dilution be necessary, use dibasic ester, DBE (CAS: 95481-62-2). Henkel recommends a maximum of 10 wt%. This should be accomplished by adding solvent at 0.5 wt% intervals until desired viscosity and printability is achieved.

3 Application

Emulsion, solvent resistant, µm	10 to 40
Squeegee shore hardness	70 to 90
Screen type, Polyester screen, mesh/inch	200 to 300



4 Application (for Flexographic printing)

- Dilution with n-propyl acetate (CAS: 109-60-4) is recommended to lower the viscosity and make the ink printable and faster drying.
- Anilox roll 9.5 to 21.4 ml/m² (6 to 13.8 BCM) with a line count of 50 to 70 lines/cm (150 to 178 lines/inch) respectively, depending on desired thickness.

Clean up

1. The equipment can be cleaned with esters (butylacetate, ethylacetate, DBE) or ketones (MIBK, MEK).

Storage

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

Optimal storage: 20°C. Storage below 5°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 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

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

Disclaimer

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