

LOCTITE ECI 1011 E&C

November 2022

PRODUCT DESCRIPTION

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

Technology	Thermoplastic
Appearance	Gray paste
Filler Type	Silver
Product Benefits	<ul style="list-style-type: none"> • High conductivity • Small particle size • Excellent adhesion • Suitable for flexographic printing • Suitable for rotogravure printing • Suitable for screen printing applications
Operating Temperature-Maximum	105°C
Cure	Heat Drying and Heat Sintering
Application	Conductive Ink
Key Substrates	Paper and PET substrates
Typical Assembly Applications	<ul style="list-style-type: none"> • UHF and HF antenna assembly • Printed circuits and other conductive circuit applications

LOCTITE ECI 1011 E&C is a silver ink characterized by good adhesion and very high conductivity. The particle size of LOCTITE ECI 1011 E&C is below 2µm. Therefore, it will partially sinter during the drying process. This product is suitable for screen, flexographic, and gravure printing. The appearance of the coating is very smooth and shiny. This ink is particularly suitable for antenna applications.

TYPICAL PROPERTIES OF UNDRIED MATERIAL

Particle Size, µm	<2
Solids Content, after 90 minutes @ 150°C, %	75.6
Density, g/ml	3
Viscosity @ 15 s ⁻¹ , Rheometer, mPa·s (cP)	2,800
Thixotropic Index (1.5/15 s ⁻¹)	2.5
Theoretical coverage @ 10 µm dry film thickness, m ² /kg	10
Shelf Life @ 20°C, days	365
Flash Point - See SDS	

TYPICAL DRYING PERFORMANCE

Recommended Drying & Sintering Cycle

Using Batch Processing

- 10minutes @ 150°C (box oven).

Using roll-2-roll flexographic printing

- In-line NIR drying possible. Time and wattage needed needs to be determined experimentally on the production line.
- Photonic sintering possible after drying off the solvent.

LOCTITE ECI 1011 E&C can be dried using forced air, (near) infrared or photonic 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 DRIED MATERIAL

Physical Properties

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

Electrical Properties

Sheet Resistance, Ohm/sq/25 µm <0.005

GENERAL INFORMATION

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

DIRECTIONS FOR USE

Surface Preparation

1. Clean surface thoroughly prior to application.

Mixing/Dilution

1. LOCTITE ECI 1011 E&C is supplied ready for use.
2. Mix thoroughly before use to ensure it is homogenous.
3. If needed, the ink can be diluted with Dibasic ester (DBE).

Application

Emulsion, Solvent resistant emulsion, µm	10 to 40
Squeegee Shore Hardness	70 to 90
Screen Type, Polyester screen, mesh/inch	200 to 300

Application (for Flexographic printing)

1. 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, propylacetate, ethylacetate) or ketones (MEK, Acetone).

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 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.

Not for product specifications

The technical data contained herein are intended as reference only. Please contact your local Henkel representative for assistance and recommendations on the specifications of this product.

Conversions

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

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

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

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

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

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

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

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

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

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

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

Disclaimer

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.

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