

LOCTITE ECI 1014 E&C

July 2022

PRODUCT DESCRIPTION

LOCTITE ECI 1014 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• Low temperature drying• Flexible• Compatible for use with polycarbonate, polyester and polyurethane
Operating Temperature-Maximum	105°C
Cure	Hot air drying
Application	Inks and coatings, Conductive Ink
Typical Assembly Applications	Conductive circuits
Key Substrates	PET, PC, TPU, PI, PEN

LOCTITE ECI 1014 E&C is a highly conductive, stretchable ink formulated to dry at low temperatures. This material can be used on solvent sensitive substrates like polycarbonate.

TYPICAL PROPERTIES OF UNDRIED MATERIAL

Solids Content (TGA), %	65.4
Density, g/cm ³	2.2
Viscosity @ 15 s ⁻¹ , Rheometer, mPa·s (cP)	10,000
Thixotropic Index (15/1.5 s ⁻¹)	2.0
Theoretical coverage, :	
@ 10µm dry coating thickness, m ² /kg	12
Shelf Life @ 20°C, days	365

TYPICAL DRYING PERFORMANCE

Recommended Drying Cycle

15minutes @ 120°C

LOCTITE ECI 1014 E&C is suitable for low temperature drying (e.g., 80 to 100°C) which will result in a slightly higher resistance value. Higher temperatures for longer time will improve performance. However, 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 (Autostat CUS5), Cross Hatch, 5B grade

Electrical Properties

Sheet Resistance, 4-point probe, Ohm/sq/25 µm:

5 minutes @ 100°C	0.014
15 minutes @ 120°C	0.009

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 ink is homogenous.
- This can be done with a propeller mixer.
- If needed, the ink can be diluted with Dowanol DPM.

3. Application

- LOCTITE ECI 1014 E&C may be applied by screen printing method.
- Recommended screen and printing parameters are:
Emulsion Thickness, Solvent resistant 10 to 40 µm
Squeegee Hardness 70 to 90
Screen Type, Polyester screen, cm 77-48

CLEAN-UP

1. The equipment can be cleaned with esters (butylacetate, ethylacetate) 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 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

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

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

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

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

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

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

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

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

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

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

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

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.

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.

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, 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 of Henkel Corporation in the U.S. and elsewhere. ® denotes a trademark registered in the U.S. Patent and Trademark Office.

Reference 2