

LOCTITE® ECI 1501

November 2024

PRODUCT DESCRIPTION

LOCTITE® ECI 1501 provides the following product characteristics:

| | |
|-------------------------------|---|
| Technology | Thermoplastic |
| Appearance | Gray |
| Filler type | Silver |
| Product benefits | <ul style="list-style-type: none"> Thermoformable Good conductivity Screen printable Compatible with solvent sensitive substrates |
| Cure | Hot air drying |
| Application | Inks and coatings, Conductive and dielectric inks |
| Typical assembly applications | Conductive circuits |
| Key substrates | TPU, PET, PC |

LOCTITE® ECI 1501 is a formable, conductive silver ink with a good elongation performance. It is often used to print formable circuits to create 2.5 to 3D shaped circuits and in-molded electronic (IME) solutions. LOCTITE® ECI 1501 has a possible elongation to break of $\pm 50\%$. It is suitable for screen printing and compatible with polyester, polycarbonate, and some TPU foils. LOCTITE® ECI 1501 is compatible with some LOCTITE Electrically Conductive Adhesives (ECAs) for component attach.

TYPICAL PROPERTIES OF UNDRIED MATERIAL

| | |
|---|--------|
| Density, g/ml | 2.2 |
| Viscosity @ 25 °C, Rheometer, 1.5 s ⁻¹ , mPa.s (cP) | 27,000 |
| Solid content, (wt%) | 70 |
| Thixotropic index (15/1.5 s ⁻¹) | 2.1 |
| Theoretical coverage, @ 10 µm dry coating thickness, m ² /kg | 14 |
| Shelf life @ 5 to 30°C, (from date of manufacture), days | 365 |
| Flash Point - See SDS | |

TYPICAL DRYING PERFORMANCE

Recommended drying cycle

15 minutes, 120°C

LOCTITE® ECI 1501 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 THE DRIED MATERIAL

Physical properties

| | |
|---|------|
| Adhesion to PET (Autostat CUS5), ASTM 3359, Method B, grade | 5B |
| Elongation before break, % | > 50 |

Electrical properties

| | |
|---|-------|
| Sheet resistance, 4-point probe, Ohm/sq/25µm 15 min at 120°C | 0.016 |
|---|-------|

GENERAL INFORMATION

Please consult the Safety Data Sheet (SDS) for safe handling information of this product.

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 diethylene glycol butyl ether (CAS: 112-34-5).. 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

- Recommended screen and printing parameters are:

| | |
|---|------------|
| Emulsion, solvent resistant, µm | 10 to 40 |
| Screen type, stainless steel, mesh/inch | 180 to 250 |
| Squeegee hardness | 70 to 90 |

CLEAN UP

The screen and equipment can be cleaned with dilution solvent, or esters (PM-acetate, 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: 20 to 25°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

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

Disclaimer

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