

# LOCTITE ECI 8120 E&C

August 2022

## PRODUCT DESCRIPTION

LOCTITE ECI 8120 E&C provides the following product characteristics:

<b>Technology</b>	Thermoplastic
<b>Appearance</b>	Black paste
<b>Filler Type</b>	Carbon
<b>Operating Temperature -Maximum</b>	110°C
<b>Cure</b>	Hot air drying or infrared
<b>Application</b>	Conductive Ink
<b>Product Benefits</b>	<ul style="list-style-type: none"> <li>• Screen printable</li> <li>• Flexible</li> <li>• Printable on most common substrates</li> <li>• Rapid heating with well-defined cut-off temperature, no external control devices needed</li> <li>• Self-regulation temperature in the 100 to 105°C range</li> </ul>
<b>Typical Assembly Applications</b>	Self regulating heating elements
<b>Key Substrates</b>	PET, PEN, PI

LOCTITE ECI 8120 E&C is a Positive Temperature Coefficient (PTC) screen printable ink designed for applications where low voltage (< 50 V) self-regulating heaters are required. This material is formulated to rapidly heat to a specific threshold temperature and then maintain constant temperature for the device. The self-regulating temperature of the bare ink is in the 100 to 105°C range.

## TYPICAL PROPERTIES OF UNDRIED MATERIAL

Solids Content (TGA), %	46
Density, g/mL	1.0
Viscosity, Plate and Plate, mPa·s (cP):	
Plate 20 mm, 200 µm gap @ Shear rate 50 s <sup>-1</sup>	4,500
Shear Thinning Index (5/50 s <sup>-1</sup> )	6
Theoretical coverage @ 10 µm dry coating thickness, m <sup>2</sup> /kg	43
Shelf Life, days	365

## TYPICAL DRYING PERFORMANCE

### Recommended Drying Cycle

10 minutes @ 140°C

LOCTITE ECI 8120 E&C can be dried using forced air or infrared systems. 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

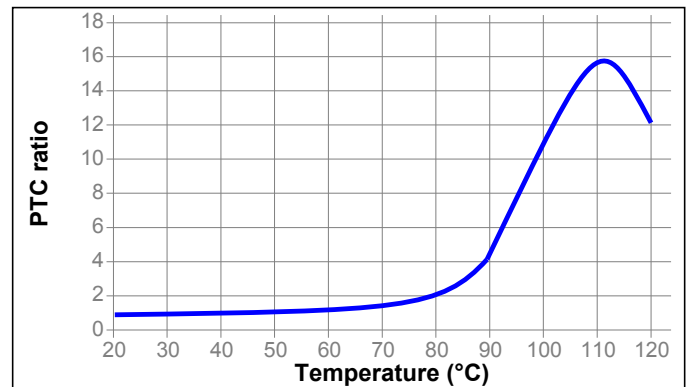
### Physical Properties

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

### Electrical Properties

Sheet Resistance, 4-point probe, kOhm/sq/25µm:	
10 minutes @ 140°C	1.7
PTC ratio	> 8

**PTC Ratio vs. Temperature curve of dried PTC-ink, measured on a test design. The PTC ratio is calculated by  $PTC\ Ratio(T) = R(T)/R(25^{\circ}C)$**



**GENERAL INFORMATION**

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

**DIRECTIONS FOR USE****1. Surface Preparation**

- Surfaces to be coated must be clean, dry and free of dust.

**2. Mixing/Dilution**

- Mix thoroughly with plastic spatula or mechanical stirrer from bottom of container, careful not to whip air in to the product. Using a plastic spatula will decrease the possibility of introducing plastic grindings from the container sidewalls into the product, which could damage the screen.
- If needed, the ink can be diluted with Butyl glycol acetate.

**3. Application**

- LOCTITE ECI 8120 E&C can be used on a wide variety of plastic substrates
- Recommended screen printing parameters are:

Screen Type:

Polyester Screen, mesh/cm	54
Stainless Steel Screen, mesh/inch	200
Typical dry coating thickness, $\mu\text{m}$	17
Emulsion, Solvent resistant, $\mu\text{m}$	10 to 40
Squeegee Hardness	70 to 90

**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.

**CLEAN-UP**

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: 0 to 40°C. Storage below 0°C or above 40°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**

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

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

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

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

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

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

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

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

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

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

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

**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 3