Technical Data Sheet

LOCTITE ECI 1804 E&C

April 2017

PRODUCT DESCRIPTION

LOCTITE ECI 1804 E&C provides the following product characteristics:

Technology	Thermoplastic
Appearance	Light grey liquid
Filler Type	Silver
Product Benefits	• High electrical conductivity • Suitable for fine line printing applications • Extended screen residence time
Application Method	Screen printing
Cure	Hot air drying
Application	Conductive Ink
Typical Assembly Applications	Solar cell assembly

LOCTITE ECI 1804 E&C conductive ink is specially designed for screen printing highly conductive finger structures on copper indium gallium selenide solar cell (CIGS cell).

TYPICAL PROPERTIES OF UNCURED MATERIAL

Solids Content @ 200°C, %	84
Viscosity, Cone & Plate, mPa·s (cP):	
Plate 20 mm, 200 µm gap @ Shear rate 10 s^{-1}	97,000

Flash Point - See SDS

TYPICAL CURING PERFORMANCE

Recommended Drying Cycle

20 minutes @ 200°C

LOCTITE ECI 1804 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.

TYPICAL PROPERTIES OF CURED MATERIAL

Electrical Properties

Sample cured 20 minutes @ 200ºC

Volume Resistivity, ohm-cm	7×10^{-6}
Finger Width, 360/16SS; EOM 14, µm	<70

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 it is homogenous. A slow speed propeller may be utilized to mix until product is uniform.
   - If needed, the ink can be diluted with Butyl glycol acetate.
3. **Application**
   - LOCTITE ECI 1804 E&C may be applied by screen printing method.
   - Recommended screen and printing parameters are:

Screen TypeStainless steel screen	Stainless steel screen
Screen mesh	360 mesh
Screen diameter	16
Emulsion Thickness	14

CLEAN-UP

- Ethanol can be used to clean the screen.

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 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 Technical Service Center or Customer Service 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 specifications for this product.

Conversions

(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
N x 0.225 = lb/F
N/mm x 5.71 = lb/in
psi x 145 = N/mm²
MPa = N/mm²
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

Disclaimer

Note:
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.
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