

# LOCTITE® EDAG PF 410

November 2024

## PRODUCT DESCRIPTION

LOCTITE® EDAG PF 410 provides the following product characteristics:

<b>Technology</b>	Thermoplastic
<b>Appearance</b>	Gray paste
<b>Filler type</b>	Silver
<b>Product benefits</b>	<ul style="list-style-type: none"> <li>• Applicable with manual, semi-automatic or high speed reel-to-reel screen printing equipment</li> <li>• Extended screen residence time</li> <li>• Excellent print definition</li> <li>• Non-critical, flexible low temperature drying cycles.</li> <li>• Superior adhesion to polyester film</li> <li>• Good abrasion resistance and hardness</li> <li>• Good conductivity</li> </ul>
<b>Operating temperature, °C</b>	120, maximum
<b>Cure</b>	Heat drying
<b>Application</b>	Conductive ink
<b>Typical assembly applications</b>	PET, PI, PEN, paper, copper, ITO, glass

LOCTITE® EDAG PF 410 is a halogen-free, good reliability, conductive silver ink with good flexibility. The resistance level of LOCTITE® EDAG PF 410 typically lies around 16 mOhm/sq/25µm. It can be dried at low temperature, down to 80°C. This ink can further be blended with LOCTITE® EDAG 965SS to adjust resistance levels and make the material more economical. Thanks to good thermal and chemical stability, this product is compatible with high operating temperature, has good adhesion to many substrates, and is compatible with a large range of electrically conductive adhesives for component attach or solderable with low melting Sn42Bi58 solder. LOCTITE® EDAG PF 410 is suitable for screen printing and often used to create flexible circuits, keyboards, membrane switches, medical electrodes or biosensors.

## TYPICAL PROPERTIES OF UNDRIED MATERIAL

Solid content, wt%	74
Density, kg/m <sup>3</sup>	2,500
Viscosity, Brookfield - RVT, 20°C, after 15 min, mPa·s (cP) Speed 20 rpm	16,000
Theoretical coverage, @ 10µm dry coating thickness, m <sup>2</sup> /kg	15
Shelf life @ 5 to 30°C, (from date of qualification in original seal), year	1
Flash point, °C	110

## TYPICAL SCREEN PRINTING PROCESS

### Printing equipment type

Manual  
Semi-automatic  
High speed reel-to-reel

### Recommended dry coating thickness

Dry coating thickness, µm 6 to 12

### Recommended screen type

Monofilament polyester screen, mesh/cm 68 to 110  
Stainless steel screen, mesh/cm 90 to 154

### Recommended squeegee

Polyurethane, durometer 70 to 75

### Emulsion thickness

Emulsion thickness, µm 20 to 40

## TYPICAL DRYING CYCLE

### Recommended drying cycle

15 minutes @ 120°C

LOCTITE® EDAG PF 410 can be dried immediately after printing at temperatures between 80 to 140°C. Higher temperatures will yield lower sheet resistance and better mechanical properties.

For high speed production, jet drying, infra-red drying and drying in high speed reel-to-reel equipment can be used.

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 on PET, Cross hatch, ASTM 3359, grade 5B

**Electrical properties**

Sheet resistance, 4-point probe, Ohm/sq/25µm	0.016
15 min at 120°C	
After 15 min at 90°C	0.022

**GENERAL INFORMATION**

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

**DIRECTIONS FOR USE****Surface preparation**

- Clean surface thoroughly prior to application.

**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 2-(2-Ethoxyethoxy) ethyl acetate (CAS: 112-15-2). 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.

**CLEAN UP**

The screen and equipment can be cleaned with dilution solvent, or esters (butylacetate, 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: 5 to 30°C. Storage below 5°C or greater than 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 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**

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

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