

# LOCTITE LF 318

November 2014

## PRODUCT DESCRIPTION

LOCTITE LF 318 provides the following product characteristics:

<b>Technology</b>	Solder paste
<b>Application</b>	Pb-free soldering

LOCTITE LF 318 solder paste is a halide-free, no clean, pin testable Pb-free solder paste, formulated to have excellent humidity resistance and a broad process window, both for reflow and printing. This product has a high tack force to resist component movement during high speed placement and long printer abandon times. LOCTITE LF 318 shows excellent solderability over a wide range of reflow profiles in both air and nitrogen across a wide range of surface finishes including Ni/Au, Immersion Sn, Immersion Ag and OSP copper.

## FEATURES AND BENEFITS

- Good humidity resistance. Gives excellent coalescence even after 72 hours exposure to 27°C/80% RH, reducing process variation due to environmental factors.
- Colorless residues for easy post-reflow inspection.
- Soft, non-stick, pin testable residues allow easy in-circuit testing.
- Suitable for fine pitch, high speed printing up to 150mm/s (6"/s).
- Extended open time and tack-life leading to low wastage.
- Halide-free flux classification: ROL0 to ANSI/J-STD-004.

## TYPICAL PROPERTIES

Based on Type 3 powder.

### Solder Paste Typical Properties

Alloys	96SC, 97SC
Powder Particle Size, $\mu\text{m}$	25-45
Powder Size Coding	AGS
Metal Loading (Weight %)	88.5
Slump, J-STD-005, mm	IPC A21 Pattern
<i>RT, 15 minutes</i>	
0.33 x 2.03 mm pads	0.06
0.63 x 2.03 mm pads	0.33
<i>150°C, 15 minutes</i>	
0.33 x 2.03 mm pads	0.25
0.63 x 2.03 mm pads	0.41
Brookfield Viscosity TF spindle, 25°C, 5rpm after 2 minutes, mPa·s	765,000
Thixotropic Index (Ti), 25°C ( $Ti = \log(\text{viscosity @ } 1.8\text{s}^{-1}) / \text{viscosity @ } 18\text{s}^{-1}$ )	0.54
Malcom Rheology, 10rpm, 25°C, Rate $6\text{s}^{-1}$	1,961
Initial tack force, g $\text{mm}^{-2}$	2.0
Useful open time, hours	>24

## Solder Powder:

Careful control of the atomisation process for production of solder powders for LOCTITE LF 318 solder pastes ensures that the solder powder is produced to a quality level that exceeds IPC/J-STD-006 & EN29453 requirements for sphericity, size distribution, impurities and oxide levels. Minimum order requirements may apply to certain alloys and powder sizes.

## DIRECTIONS FOR USE

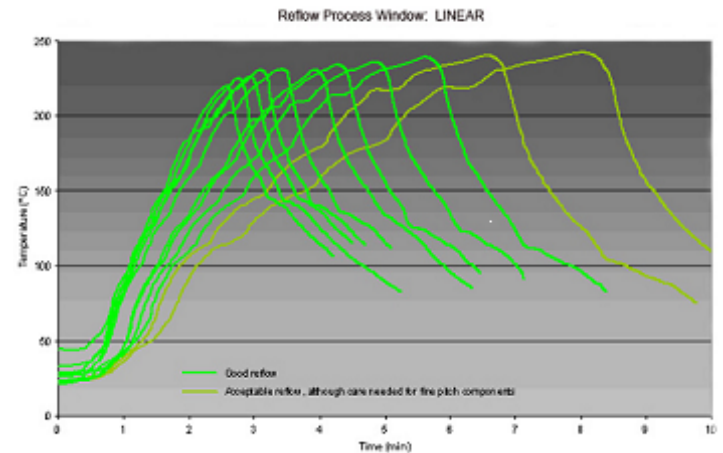
### Printing:

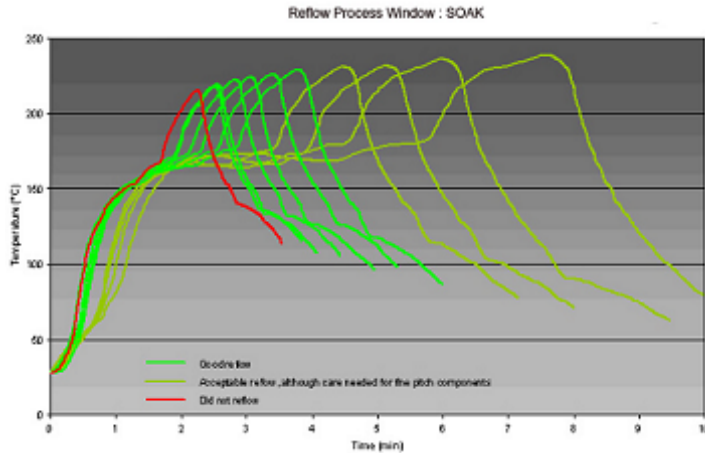
1. LOCTITE LF 318 is available for stencil printing down to 0.4mm (0.016") pitch devices, with type Type 3 (AGS) powder.
2. Printing at speeds between 25mm/s (1.0"/s) and 150mm/s (6"/s) can be achieved by using laser cut and electro-polished, electro-formed stencils, metal squeegees (preferably 60°).
3. Acceptable first prints have been achieved at 0.4mm (0.016") pitch after printer down times of 240 minutes without requiring a knead cycle.

### Reflow:

- Any of the available methods of heating to cause reflow may be used including IR, convection, hot belt, vapor phase and laser soldering.
- LOCTITE LF 318 is not sensitive to reflow profile type.
- No single reflow profile is deemed suitable for all processes and applications, but the following example profiles have given good results in practice.

### Profile 1:



**Profile 2:****Cleaning:**

1. LOCTITE LF 318 solder pastes are no-clean and are designed to be left on the PCB in many applications post-assembly since they do not pose a hazard to long-term reliability.
2. Residue removal can be achieved using conventional cleaning processes based on solvents such as LOCTITE MCF 800 or suitable saponifying agents.
3. For stencil cleaning and cleaning board misprints, LOCTITE MSC 01 solvent cleaner is recommended.

**RELIABILITY PROPERTIES****Solder Paste Medium:**

LOCTITE LF 318 medium includes a stable resin system with slow evaporating solvents and minimal odor. The formulation has been tested to the requirements of Telcordia (formerly known as Bellcore) GR-78-CORE and ANSI/J-STD-004B for a type ROL0 classification specification.

Test	Specification	Results
Copper Plate Corrosion	ANSI/J-STD-004	Pass
Copper Mirror Corrosion	ANSI/J-STD-004	Pass
Chlorides & Bromides	ANSI/J-STD-004	Pass
Surface Insulation Resistance (without cleaning)	ANSI/J-STD-004	Pass
	Telcordia GR-78-Core	Pass
	JIS-Z-3248	Pass
Flux Activity Classification (without cleaning)	ANSI/J-STD-004	ROL0

**STORAGE AND SHELF LIFE****Storage:**

It is recommended to store LOCTITE LF 318 at 0 to 10°C. (NB cartridges should be stored tip down to prevent the formation of air pockets). The paste should be removed from cold storage a minimum of 8 hours before use. Do not use forced heating methods to bring solder paste up to temperature. LOCTITE LF 318 has been formulated to minimize flux separation on storage but should this occur, gentle stirring for 15 seconds will return the product to its correct rheological performance. To prevent contamination of unused product, do not return any material to its original container. For further specific shelf life information, contact your local Technical Service Center.

**Shelf Life:**

Provided LOCTITE LF 318 is stored tightly sealed in its original container at 0 to 10°C, a minimum shelf life of 183 days can be expected. Air shipment is recommended to minimize the time the containers are exposed to higher temperatures.

**DATA RANGES**

The data contained herein may be reported as a typical value and/or a range. Values are based on actual test data and are verified on a periodic basis.

**GENERAL INFORMATION**

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

**Not for Product Specifications**

The technical information contained herein is intended for reference only. Please contact Henkel Technologies Technical Service for assistance and recommendations on specifications for 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****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.

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, Resin Technology Group, Inc., 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

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [multicore manufacturer](#):*

Other Similar products are found below :

[MM02104](#) [96SC 400 5C 0.50MM](#) [D99182](#) [NO.5](#) [MF300S](#) [673832](#) [NC-OO 0.89MM 30M](#) [MFR 301](#) [3099095-M](#) [D620505](#) [609985](#)  
[MM01097](#) [PC21A](#) [MM00991](#) [631719](#) [DS22 500G REEL](#) [NC-AB30M](#) [MF300](#) [DLMP22 250G REEL](#) [96SC 502 5C 1.00MM](#) [63/37AP](#)  
[5029725-M](#) [DS18 500G REEL](#) [D4016 500G REEL](#) [96SCLF318ADP88.5V](#) [737197](#) [737196](#) [DLMP24 250G REEL](#) [D6192](#) [D9922](#) [609961](#)  
[MM00975](#) [5029075-M](#) [289515](#) [DLMP26 250G REEL](#) [796065](#) [397102](#) [D610SCF192-500G](#) [D622505](#) [MM02179](#) [DLMP22 500G REEL](#)  
[3099075-M](#) [D96SCF192. 2METRE](#) [395437](#) [D96SCF192](#) [MM01066](#) [63CRYSTAL-400-P2-.050](#) [D96SCF222-250G. 2METRE](#) [NC-AA30M](#)  
[386851](#)