

LOCTITE LF 721

September 2014

PRODUCT DESCRIPTION

LOCTITE LF 721 provides the following product characteristics:

Technology	Solder paste
Application	Pb-free soldering

LOCTITE LF 721 is a halide-free, no clean, low voiding Pb-free solder paste, which has excellent humidity resistance and a broad process window both for printing and reflow. It shows low hot slump to minimize the possibility of bridging and mid-chip solder balling. LOCTITE LF 721 has high tack force to resist component movement during high speed placement, long printer abandon times and excellent solderability over a wide range of reflow profiles in air and nitrogen and across a wide range of surface finishes including Ni/Au, Immersion Sn, Immersion Ag and OSP copper.

FEATURES AND BENEFITS

- 4 hours between print abandon time even on small CSP apertures
- Very low hot slump
- Colorless residues for easy post-reflow inspection
- Suitable for fine pitch, high speed printing up to 150mm/s (4"/s)
- Halide free flux classification: ROL0 to ANSI/J-STD-004.

TYPICAL PROPERTIES

Solder Paste Typical Properties

Alloys	96SC (95.5Sn 3.8Ag 0.7Cu, 217°C) 97SC (96.5Sn 3.0Ag 0.5Cu)
Powder Particle Size, μm	20 to 38
Multicore Powder Size Coding	DAP
IPC Equivalent	Type 4
Metal Loading (Weight %)	88.5
Slump, J-STD-005, mm <i>RT, 15 minutes</i>	IPC A21 Pattern
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	0.15
0.63 x 2.03 mm pads	0.33
Brookfield Viscosity TF spindle, 25°C, 5rpm after 2 minutes, mPa·s	735,000
Initial tack force, gF	40
Useful open time, hours	>24

Solder Powder:

Careful control of the atomisation process for production of solder powders for LOCTITE LF 721 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. For availability contact your local technical service helpdesk.

DIRECTIONS FOR USE

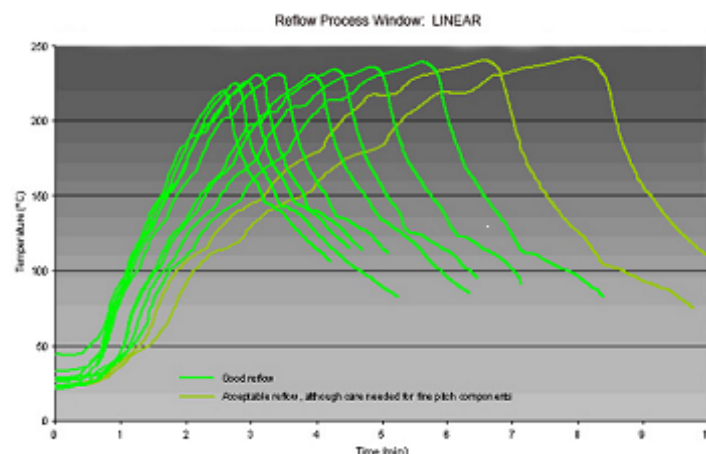
Printing:

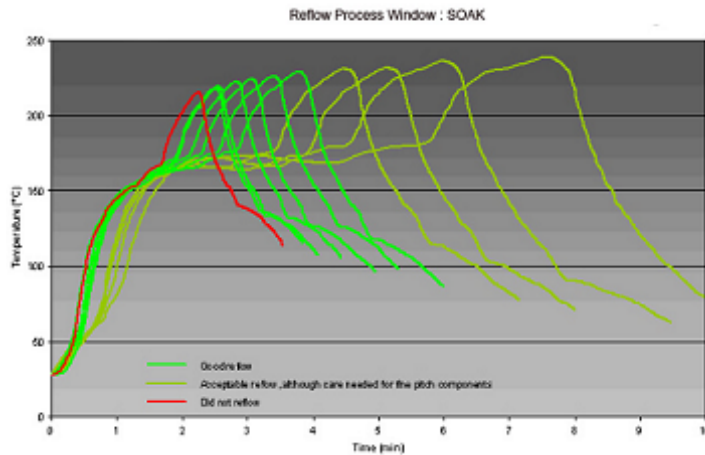
1. LOCTITE LF 721 is available for stencil printing down to 0.4 mmCSP apertures, with type 4 (DAP) powder.
2. Printing at speeds between 25mm/s (1.0"/s) and 150mm/s (6"/s) can be achieved by using laser cut, electropolished or electroformed stencils and metal squeegees (preferably 60°).
3. Under laboratory conditions, acceptable first prints have been achieved after printer down times of 120 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 721 is not sensitive to reflow profile type.
- There is no single reflow profile which is suitable for all processes and applications, but the following graph show example profiles (in green) that have given good results in practice.

Profile 1:



Profile 2:**Cleaning:**

1. LOCTITE LF 721 solder pastes are no-clean and are designed to be left on the PCB in many applications post assembly since it does not pose a hazard to long term reliability.
2. Residue removal can be achieved using conventional cleaning processes based on solvents such as MCF800 or suitable saponifying agents.
3. For stencil cleaning and cleaning board misprints, MULTICORE SC-01 Solvent cleaner is recommended.

RELIABILITY PROPERTIES**Solder Paste Medium:**

LOCTITE LF 721 medium contains a stable resin system, slow evaporating solvents and low odour. The formulation has been tested to the requirements of the ANSI/J-STD-004 for a type ROL0 classification specifications.

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
Flux Activity Classification (without cleaning)	ANSI/J-STD-004	ROL0

PACKAGING

Containers: LOCTITE LF 721 is supplied in:

- 500g plastic jars with an air seal insert
- 600g Semco cartridges

Other packaging types may be available on request; please contact your local technical service helpdesk for assistance.

Storage:

It is recommended to store LOCTITE LF 721 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 721 has been formulated to minimize flux separation on storage but should this occur, gentle stirring for 15 seconds will

return the product to the 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.

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

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

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