

# PRODUCT PROFILE

## ELECTROLOY NO CLEAN LEAD FREE PASTE

### Product Name

#515 – LEAD FREE PASTE – Sn99.0/Ag0.3/Cu0.7

### Product Code

EMCO#515-315P

The information and statements herein are believed to be reliable but are not to be construed as a warranty or representation for which we assure legal responsibility. Users should undertake sufficient verification and testing to determine the suitability for their own particular purpose of any information or products referred to herein. No warranty of fitness for a particular purpose is made. Properties are typical and not to be used as specifications.

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. China . Malaysia . Singapore

## PRODUCT DESCRIPTION

Electroloy's EMCO#515-315P\* No Clean Solder Paste is specially formulated for lead free soldering applications. EMCO#515-315P uses a high shear resistance ingredient that offers excellent print capability. This flux system can withstand high preheating temperature without discoloration.

EMCO#515-315P delivers excellent wetting and soldering on most board finishes including OSPs, reducing solder balls formation and solder beading.

## ATTRIBUTES

- Excellent Printing Capability - Suitable for ultra fine pitch soldering operation
- Wide Reflow Window - Increase production process window
- Reduce Solderballing - Minimize rework
- Anti Solder Void Formulation - Meet IPC 7095 Voids Performance Classification Class III
- Excellent Paste In Hole Application - For printing, dispensing (or pin transfer) SMT applications

## CHEMICAL COMPOSITION OF ALLOY

Quality of Electroloy's EMCO#515-315P lead free solder paste in terms of composition of alloy is controlled strictly under Electroloy's Lead Free Specification LF-315.

Elements		Specification (%wt/wt)
Tin	Sn	Remainder
Lead	Pb	Max 0.050
Aluminium	Al	Max 0.005
Antimony	Sb	Max 0.050
Arsenic	As	Max 0.030
Bismuth	Bi	Max 0.050
Copper	Cu	0.6 – 0.8
Iron	Fe	Max 0.010
Zinc	Zn	Max 0.003
Cadmium	Cd	Max 0.002
Silver	Ag	0.2 – 0.4
Nickel	Ni	Max 0.010
Indium	In	Max 0.050
Gold	Au	Max 0.050

\* Patent No: US 5527628

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## PHYSICAL APPEARANCE

Electroloy's solder paste exhibits a homogenous solder paste which is grey color.

## PARTICLE SIZE OF SOLDER POWDER

The particle size of solder powder is compliant with the International Standard Specification IPC J-STD-005. For Type 3 powder (20-38  $\mu\text{m}$ ) :

%Of Sample By Weights	Nominal Size
Less than 1% larger than	38 microns
80% minimum between	38-20 microns
10% maximum less than	20 microns

Available in Type 4 by special request.

## CHARACTERISTICS OF EMCO#515-315P SOLDER PASTE

Item	Characteristics	Standard / Test Method
Viscosity value	160,000 $\pm$ 30,000 cp	PCU-203, 10rpm, 25°C
Flux classification	ROL0	IPC J-STD-004
Corrosion of copper plate	Pass (no corrosion)	IPC J-STD-004
Flux content	11.0 $\pm$ 0.5%	JIS Z 3197
Spread Test	Pass	JIS Z 3284 Annex 10
Solder Ball Test	Pass	IPC J-STD-005
Stencil Life	>8 hours	@25°C/50%RH
Flux Residue Tackiness Test	Pass	JIS Z 3284 Annex 12
Slump Test	Pass (10 min at 150°C) Pass (0.2mm pitch-no bridging)	IPC J-STD-005 JIS Z 3284 Annex 8
Insulation Resistance (IPC 7 days @85°C/85%RH)	Pass ( $\geq 1 \times 10^{10} \Omega$ )	IPC J-STD-004
Insulation Resistance (Bellcore 96 hrs @35°C/85%RH)	Pass ( $\geq 1 \times 10^{11} \Omega$ )	Bellcore GR78 CORE

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## APPLICATION

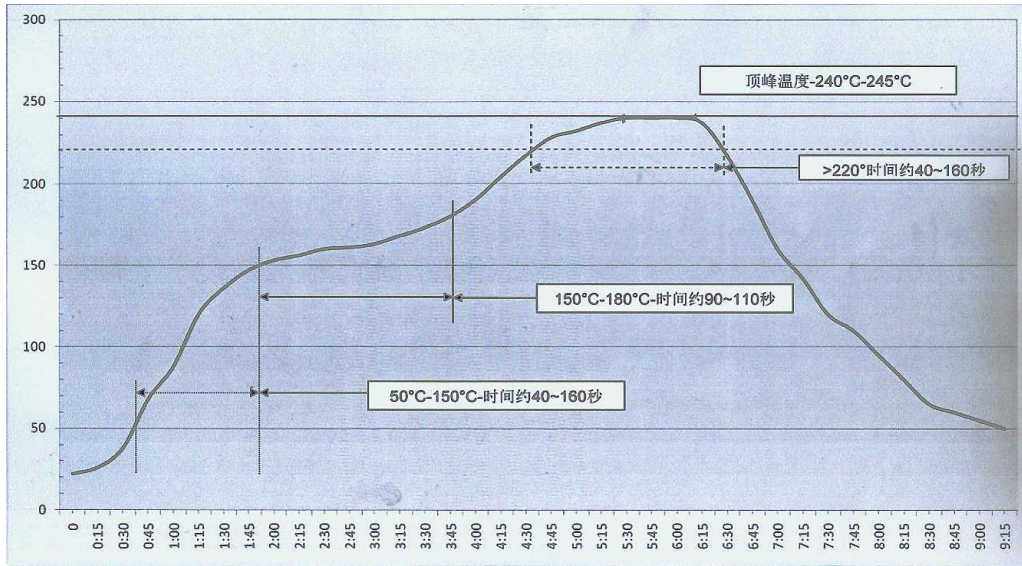
### Printing

Stencil Material	Stainless Steel	
Stencil Thickness	<u>Pitch</u> 0.3-0.5 mm 0.635 mm	<u>Stencil Thickness</u> 0.100-0.150 mm 0.150-0.200 mm
Squeegee	Stainless steel squeegee is recommended.	
Squeegee Pressure	0.15-0.40 kg/cm squeegee length depending on printing speed. Higher printing speed may require high squeegee pressure.	
Squeegee speed	25-100 mm/second	
Separation speed	1-20 mm/second. Slow separation speed is recommended.	
Paste Roll	Maintain a paste roll diameter of 15-20 mm.	

### Reflow

Atmosphere	Hot air or Nitrogen
Typical Melting Point of Alloy	Sn99.0/Ag0.3/Cu0.7: 217-227°C
Typical reflow profile for EMCO#515-315P	
50°C-150°C	40-160 seconds
150°C-180°C	90-110 seconds
>220°C	40-160 seconds
Peak Temperature	240°C-245°C

## RECOMMENDED REFLOW PROFILE FOR EMCO#515-315P



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## CLEANING

Misprint Post Cleaning	Wipe clean with commercially available solvent cleaner Residue of EMCO#515-315P is designed to be left on the board after reflow. If cleaning is required, commercially available solvent cleaner may be used.
Stencil Cleaning	Commercially available stencil cleaner is recommended with under stencil paper wipe.

## PACKAGING

Each tub of solder paste is approximately 0.5kg and shall be sealed tightly. Traceable information will be shown on the sticker such as product code, alloy composition, particle size, net weight and lot number .The solder paste tub shall be placed in foam box and packed in carton boxes of about 10kg per box. Cartridge and syringe type of solder paste is available upon request.

## STORAGE AND SHELF LIFE

To ensure best performance, it is recommended to refrigerate at 3-10°C. Under recommended storage conditions, a shelf life of 6 months is achievable. Allow the paste to stabilize at room temperature for at least 4 hours before using. Before putting paste onto the stencil, it is essentially to properly mix the paste, either with a paste mixer or manually with a spatula for 1-2 minutes. Do not mix used paste with unused paste. This may alter the properties of the solder paste.

## DELIVERY

Each order can be shipped with the Certificate of Analysis for each lot.

## MATERIAL SAFETY DATA SHEET

A MSDS for this product can be request from our Sales personnel.

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