

# PRODUCT PROFILE

## ELECTROLOY HALIDE FREE NO CLEAN LEAD FREE WIRE

### Product Name

#81 FLUX CORED SOLDER  
-LEAD FREE ALLOY-Sn99.3/Cu0.7+Ni

### Product Code

EM#81-801W

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.

DOC CATEGORY: 3

PF – EM#81-801W – 04032009 – REV.A – Page 1 of 4

## PRODUCT DESCRIPTION

EM#81-801W\* is a halide free no clean cored flux lead free wire with alloy composition 99.3%Tin, 0.7%Copper and Nickel. This type of cored flux wire provides fast wetting and leaves lowest and clear flux residue. This is a RoHS compliance lead free solder wire.

\*Nihon Superior Patent

## CHEMICAL COMPOSITION OF ALLOY

Quality of Electroloy's EM#81-801W lead free solder wire in terms of composition of alloy is controlled strictly under Electroloy's Lead Free Specification LF-801.

| Elements  |    | Specification<br>(%wt/wt) |
|-----------|----|---------------------------|
| Tin       | Sn | Remainder                 |
| Lead      | Pb | Max 0.050                 |
| Aluminium | Al | Max 0.002                 |
| Antimony  | Sb | Max 0.050                 |
| Arsenic   | As | Max 0.030                 |
| Bismuth   | Bi | Max 0.030                 |
| Copper    | Cu | 0.5 – 0.7                 |
| Iron      | Fe | Max 0.020                 |
| Zinc      | Zn | Max 0.002                 |
| Cadmium   | Cd | Max 0.002                 |
| Silver    | Ag | Max 0.050                 |
| Nickel    | Ni | Max 0.100                 |
| Indium    | In | Max 0.100                 |
| Gold      | Au | Max 0.050                 |
| Sulphur   | S  | Max 0.005                 |

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## CHEMICAL COMPOSITION OF FLUX

The standard flux content for this type of solder wire is 2.5 +/- 0.2%. However, other percentages of flux are available upon request. The range for the flux percentage is 2.2% – 3.3%.

## FEATURES OF CORED FLUX

| Flux Cored Type                   | Features   | Cleaning Method |
|-----------------------------------|--|-----------------|
| <b>No-Clean Halide Free EM#81</b> | Halide free with lowest and clear flux residue suited for no-clean hand soldering assemblies. Exhibit fast wetting characteristics. Widely and most popular choice for assemblies requiring no-clean, clear residue characteristics. Suitable for use on different alloys. | No-clean        |

## CHARACTERISTICS OF CORED FLUX EM#81

| Physical Properties and Reliability Data             | Specification                                  | Test Method                                 | Result (Typical)                 |
|--|--|---|----------------------------------|
| Flux Type  | -  | -   | Halide Free<br>No Clean          |
| Class Type   | Refer to J-STD-004                             | -   | ROL0                             |
| Color/Appearance                                     | -  | -   | Clear                            |
| Odor   | -  | -   | Mild                             |
| Halide Content (%)<br>(Chloride and Bromide)         | Max 0.0 %                                      | JIS Z 3197,<br>Method 8.1.4.2.1             | 0.00 %                           |
| Corrosion Test                                       | Pass   | J-STD-004,<br>IPC-TM-650,<br>Method 2.6.15  | Pass                             |
| SIR,IPC(Typical)<br>85°C / 85% RH<br>After 168 hours | Min $1 \times 10^8 \Omega$                     | J-STD-004,<br>IPC-TM-650,<br>Method 2.6.3.3 | $\geq 1.0 \times 10^{11} \Omega$ |
| Spreading (%)  | Min 65%<br>Lead Free Solder<br>(JIS 3283:2006) | JIS Z 3197, Method<br>8.3.1.1               | $\geq 80\%$                      |

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## PHYSICAL APPEARANCE

Electroloy's solder wire exhibits a shining appearance and in grey uniform color. A wide range of diameter for the wire is available, 0.2– 2.4mm (+/-0.05mm) , 2.5mm – 3.5mm (+/-0.1mm) , 3.6mm – 4.5mm (+/-0.2mm) and  $\geq 4.6\text{mm}$ (+/-0.3mm).

## CLEANING

The flux residue is not conductive and is not corrosive to metal parts. Therefore, cleaning is not required in most application.

## APPLICATION

Solder iron tip temperature should be between 350 – 430°C. Hold the solder iron tip at a 45° to 60° angle with work surface. The solder iron should contact both the component lead and PCB pad surface.

## PACKAGING

Each spool of solder wire is approximately 0.5kg or 1.0kg and shall be secured by paper and rolling tape. The solder wire shall be packed in carton boxes of about 10kg per box. Other special size and packaging requirement can be requested. The traceable information will be shown on the box such as vendor's name, alloy composition, net weight and lot number.

## DELIVERY

Each shipment shall be accompanied with Certificate of Analysis for each lot, which indicate the amount of constituents and impurities.

## STORAGE AND SHELF LIFE

Electroloy's EM#81-801W lead free solder wire has limited shelf life which is 18 months from the date of manufactured when handled properly. Dry and non-corrosive storage environment is needed to minimize the wires from further oxidation. Ensure that the packaging is not damaged and the wires are not exposed to dust and other foreign materials.

## HEALTH AND SAFETY

Refer to the MSDS for guidance on safety and health issues.

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