



## LF-4300 Lead-Free, Water Washable Solder Paste

### Product Data Sheet

#### Product Highlights

- RELO flux classification in a Water Washable Solder Paste
- Tier I Military/Avionic OEM approved
- Exceptional print definition at high printing speeds up to 100mm/sec
- Residue can be left on the board in most assemblies (not recommended for high impedance assemblies)
- Clear Residue
- Low voiding, including LGA components
- RoHS II and REACH compliant
- Compatible with enclosed print heads
- Print and dispense grade solder paste available

#### Available Alloys

| Alloy              | Temp °C | Temp °F |
|--------------------|---------|---------|
| 42Sn/58Bi          | 138     | 280     |
| 42Sn/57Bi/Ag1      | 138     | 280     |
| 96.5Sn/3.0Ag/0.5Cu | 217-220 | 423-428 |
| 99.0Sn/0.3Ag/0.7Cu | 217-221 | 423-430 |
| 96.5Sn/3.5Ag       | 221     | 430     |
| 99.3Sn/0.7 Cu      | 227     | 441     |
| 95Sn/5Sb           | 235-240 | 455-464 |
| 95Sn/5Ag           | 221-245 | 430-473 |

#### Packaging

500 gram jars  
500 gram cartridges  
35 or 100 gram syringes  
ProFlow cassettes

#### Test Results

| Test J-STD-004 or other requirements (as stated)                         | Test Requirement                                   | Result   |
|--|--|--|
| Copper Mirror  | IPC-TM-650: 2.3.32                                 | L: No breakthrough   |
| Corrosion  | IPC-TM-650: 2.6.15                                 | L: No corrosion  |
| Quantitative Halides   | IPC-TM-650: 2.3.28.1                               | L: <0.5%   |
| Electrochemical Migration  | IPC-TM-650: 2.6.14.1                               | L: <1 decade drop (no-clean)   |
| Surface Insulation Resistance 85 °C, 85% RH@ 168 Hours                   | IPC-TM-650: 2.6.3.7                                | L: ≥100 MΩ (no-clean)  |
| Tack Value   | IPC-TM-650: 2.4.44                                 | 37g  |
| Viscosity - Malcom @ 10 RPM/25 °C (x10 <sup>3</sup> mPa/s)- SAC305 T3/T4 | IPC-TM-650: 2.4.34.4                               | Print: 155-215<br>Dispensing: 80-115   |
| Visual   | IPC-TM-650: 3.4.2.5                                | Clear and free from precipitation  |
| Conflict Minerals Compliance   | Electronic Industry Citizenship Coalition (EICC)   | Compliant  |
| REACH Compliance   | Articles 33 and 67 of Regulation (EC) No 1907/2006 | Contains no substance >0.1% w/w that is listed as a SVHC or restricted for use in solder materials |

# LF-4300 Lead-Free, Water Washable Solder Paste

## Printer Operation

The following are general guidelines for stencil printer optimization with LF-4300. Some adjustments may be necessary based on your process requirements.

Print Speed: 25-100 mm/sec

Squeegee Pressure: 70-250g/cm of blade

Under Stencil Wipe: Once every 10-25 prints, or as necessary

## Stencil Life

> 8 hours @ 30-45% RH and 20-25 °C

~ 4 hours @ 45-75% RH and 20-25 °C

## Cleaning

LF-4300 is a water washable solder paste that can be left on the board for many SMT assemblies. For applications requiring cleaning, LF-4300 can be cleaned using deionized water at 40-60 °C with a recommended water pressure of 30-50 PSI. LF-4300 can also be cleaned using commercially available flux residue removers such as Kyzen Aquanox A4241, A4520, A4625 and A4625B (Batch Cleaners). Kyzen brand cleaners are available from Amtech.

## Recommended Profile

This profile is designed to serve as a starting point for process optimization using LF-4300. To achieve better results with voiding or to reduce tombstoning, consider using a longer soaking zone, (170-220 °C) for 60-90 seconds, with a rapid pre-heat stage. If there is evidence of solder de-wetting, consider lowering the peak reflow temperature, or reduce the time above liquidus to <60 seconds.

## AMTECH Part Numbers

LF-4300 96.5Sn/3.0Ag/0.5Cu, Type 3, 500 gram jar: Part Number: 11480

LF-4300 96.5Sn/3.0Ag/0.5Cu, Type 4, 500 gram jar: Part Number: 11530

LF-4300 96.5Sn/3.0Ag/0.5Cu, Type 3, 500 gram cartridge: Part Number: 11460

LF-4300 96.5Sn/3.0Ag/0.5Cu, Type 3, 35 gram syringe: Part Number: 11410

LF-4300 96.5Sn/3.0Ag/0.5Cu, Type 4, 35 gram syringe: Part Number: 11535

Other alloy and packaging combinations available upon request.

## Amtech Low Oxide Powder Distribution

| Micron Size | Type   | Pitch Requirements |
|-------------|--------|--------------------|
| 45-75µ      | Type-2 | 24 mil and above   |
| 25-45µ      | Type-3 | 16-24 mil          |
| 20-38µ      | Type-4 | 12-16 mil          |
| 15-25µ      | Type-5 | 8-12 mil           |
| 5-15µ       | Type-6 | 5-8 mil            |
| 2-11µ       | Type-7 | < 5 mil            |

Note: Type-6 and Type-7 may not be available in certain alloys. Other powder distributions are available on request.

## Storage

Solder paste should be stored between 3-8 °C (37-46 °F) to obtain the maximum refrigerated shelf life of six months. Unopened solder paste stored at room temperature, 25 °C (77 °F) will have a one month shelf life. Syringes and cartridges should be stored vertically in the refrigerator with the dispensing tip down. Allow 4-8 hours for solder paste to reach an operating temperature of 20-25 °C (68-77 °F). Keep the solder paste container sealed while warming the solder paste to operating temperature.

**NEVER FREEZE SOLDER PASTE.**

