AMTECH
Advanced SMT Solder Products

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LF-4300 Lead-Free, Water Washable Solder Paste

Product Data Sheet

Product Highlights

- REL0 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: <.05%
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 ($x10^3$mPa/s)- SAC305 T3/T4	IPC-TM-650: 2.4.34.4	Print: 155-215 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

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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 can be cleaned using deionized water at 40-60°C with a recommended water pressure of 30-50 PSI.

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**.

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 <90 seconds.