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**SMD291SNL, SMD291SNL10, SMD291SNL10T5,  
SMD291SNL250T3, SMD291SNL250T5**

## SynTECH-LF Lead Free Solder Paste

### Product Data Sheet

#### Product Highlights

- n ROL0 flux classification
- n Higher viscosity solder paste for better print definition
- n Clear residue
- n Low voiding
- n RoHS II and REACH compliant
- n Compatible with enclosed printing heads
- n Print & Dispense grade solder paste available
- n Passes BONO Test @ 1.56%

#### Available Alloys

| Alloy              | Temp °C | Temp °F |
|--------------------|---------|---------|
| 42Sn/58Bi          | 138     | 280     |
| 42Sn/57Bi/1Ag      | 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/0.7Cu       | 227     | 441     |
| 95Sn/5Sb           | 235-240 | 455-464 |
| 95Sn/5Ag           | 221-245 | 430-473 |

#### Packaging

500 gram jars, 500gram 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                                 | 64g  |
| 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: 125-170  |
| 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 |

# SynTECH-LF Lead Free Solder Paste

## Printer Operation

The following are general guidelines for stencil printer optimization with SynTECH-LF. 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

>12 hours @ 30-45% RH and 20-25 °C

~ 4 hours @ 45-75% RH and 20-25 °C

## Cleaning

SynTECH-LF is a no-clean solder paste that does not require cleaning for most SMT assemblies. For applications requiring cleaning, SynTECH-LF can 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 SynTECH-LF. 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

SynTECH-LF 96.5Sn/3.0Ag/0.5Cu, Type 3, 500 gram jar: Part Number: 13680

SynTECH-LF 96.5Sn/3.0Ag/0.5Cu, Type 4, 500 gram jar: Part Number: 13689

SynTECH-LF 96.5Sn/3.0Ag/0.5Cu, Type 3, 35 gram syringe: Part Number: 13650

Other alloy and packaging combinations available upon request.

## Amtech Low Oxide Powder Distribution

| Micon 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.**

