

Technical Product Information

Solder Paste AP-10 Bi58Sn42 / BiSn42Ag1

Product Description

Solder Paste AP-10 has been designed as a no-clean, air or nitrogen reflowable solder paste. This formula has a wider process window and shows better activity on OSP boards than previous no-clean formulations. AP-10 is a solder paste that maintains its activity and printing characteristics for up to 8 hours without shear thinning. AP-10 can tolerate printing pauses of up to 60 minutes with an effective first print down to 0.5 mm. The residues from AP-10 are light amber and clear from solder balls. AP-10 flux residues are light amber and washable with alcohols and/or commercial cleaners.

- Very good wetting behaviour on most surfaces
- High printing speeds up to 120 mm/s
- High activity on all substrates
- Very long stencil life of more than 6 hours
- Suitable for BGA and μ BGA
- Very good tack time for up to 24 hours
- J-STD-004 Flux classification: ROL1
- Very good printing characteristics down to 0.5 mm pitch with type 3 powder
- Very good slump characteristics

Surface Insulation Resistance

J-STD-004, IPC-TM-650, Method 2.6.3.3

AP-10, uncleaned after 24 h:	$9.6 \times 10^8 \Omega$
AP-10, uncleaned after 96 h:	$1.0 \times 10^9 \Omega$
AP-10, uncleaned after 168 h:	$1.0 \times 10^9 \Omega$
Control board after 24 h:	$1.1 \times 10^{10} \Omega$
Control board after 96 h:	$1.2 \times 10^{10} \Omega$
Control board after 168 h:	$1.2 \times 10^{10} \Omega$

Test Results

Tackiness: > 8 hrs

Slump test: pass

IPC-TM-650, Method 2.4.35

Solderballing Test: pass

IPC-TM 650, Method 2.4.43

Copper Mirror Corrosion: L

IPC-TM-650, Method 2.3.3

Silver Chromate: pass

IPC-TM-650, Method 2.3.35.1

Physical Properties

Data for solder contents of 86 – 90 % metal, Powder type 3, 25 – 45 μ m

Viscosity 500 – 800 Pa·s

Alloy	Sn [%]	Bi [%]	Ag [%]	Melting Point / Range [°C]
Bi58Sn42	42 ± 1.0	58 ± 1.0	-	139
BiSn42Ag1	42 ± 1.0	57 ± 1.0	1 ± 0.2	137 – 139

Application

Solder paste AP-10 can be applied by dispensing, stencil or sieve printing.

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Cleaning

AP-10 is a no clean paste. Residues do not need to be removed in most cases, if cleaning is required solvents like ethanol, isopropanol or mixtures of alcohols and halogenated hydrocarbons as well as commercially available cleaners can be used for effective cleaning.

Packaging

Jars: 250 g and 500 g Cassettes: DEK PRO-FLOW™ Cassettes
Cartridges: 600 g and 1200 g (SEMCO) Syringes: 10 cc and 30 cc

Storage and Shelf Life

Jars: up to 6 months
Cartridges: up to 6 months Syringes: up to 3 months

Refrigerated storage at 6 – 16 °C is recommended for extended storage times. The material should be allowed to reach room temperature by itself before opening containers to avoid condensation of moisture on the cold material.

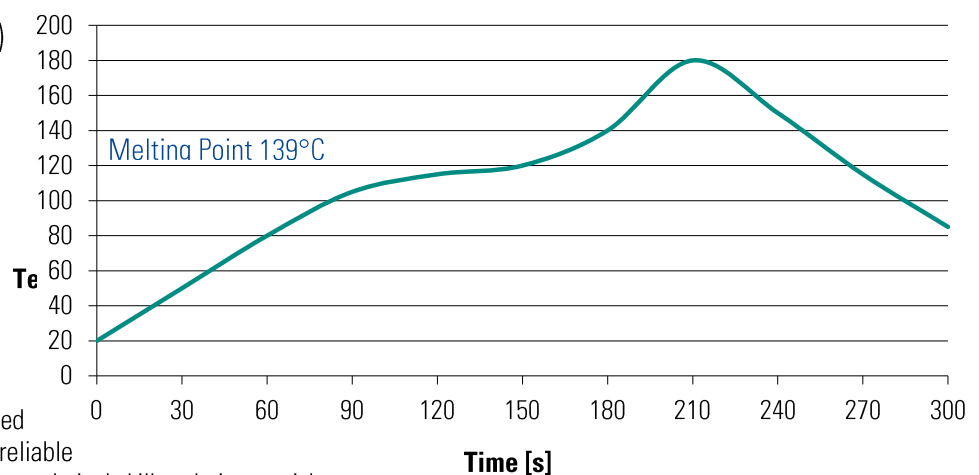
Printing

Squeegee: Stainless Steel
Speed: 25 – 50 mm/s
Stencil/Sieve: Stainless Steel
Environment: Recommended temperature range 20 – 25 °C, RH 40 – 65 %

Reflow Profile

Temperature Gradient 0.5 – 4.0 K/s up to 120 – 130 °C
Dwell Time in Preheating Zone > 60 s
Heating Rate: 3 – 7 K/s
Peak Temp: 175 – 190 °C
Reflow Time: < 60 s (over 140 °C)
Cooling Rate: 1 – 3 K/s

Recommended T-profile for AP-10 Bi58Sn42



The information contained herein is based on technical data that we believe to be reliable and is intended for use by persons having technical skill at their own risk.

Users of our products should make their own tests to determine the suitability of each product for their particular process.

TAMURA ELSOLD will assume no liability for results obtained or damages incurred through the application of the data presented.