PB-BASED SOLDER WIRE

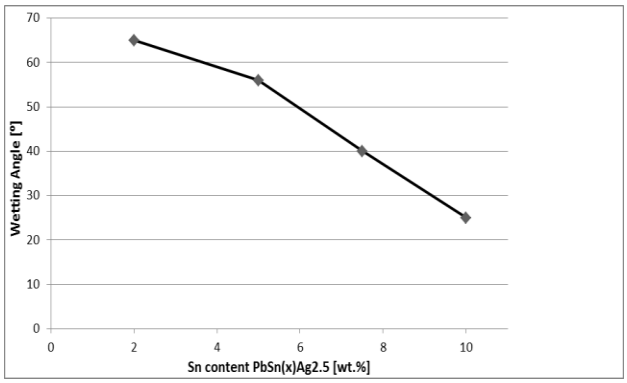
Pb-Based Aloys Offer Significant Cost Saving For Power Device Die Attach

High-Pb alloys (≥ 85% Pb) are the preferred material for the fast and low cost production of power components. The benefits of high Pb alloys include resistance to thermal fatigue, high melting temperature and the absence of building intermetallics with most electronics materials.

High Pb alloys are produced with a minimal level of impurities, voids-free and minimal surface oxidation, which are prime requirements for zero-default die-attach of power electronics. The high-purity level of the various alloys not only greatly reduces production down-time for cleaning of the spanker in production, but also assures good electrical and thermal conductivity between die and substrate in the end-use.

Coining, Inc produces the die-attach wire completely in-house with a uniquely designed, proprietary process that limits wire surface oxidation and prevents the inclusion of particles, blisters, drawing media or other substances. The blister-free wire ensures a constant wire feed onto the die, creating a clean and consistent puddle for proper die attaching.

Coining offers a range of standard die-attach alloys with the ability to co-develop product specific new alloys and has the capability to add if needed dopants to the alloy for controlling the wetting angle on various substrate materials. By controlling the wetting angle and the dimensions of the puddle of molten solder, the occurrence of voids can be largely eliminated.



RoHS Compliance: It is expected that due to the unique material properties of high-lead alloys, the exemption 7(a) of lead in high melting temperature type solders (≥85% Pb) will be extended in the foreseeable future. Although for some applications alternative solutions have been developed, there is no drop-in replacement for all applications identified.

Pb-Based Solder Spools

Standard Alloys:

Pb97.5Ag1.5Sn1: Melting-point; 309°C, Thermal conductivity; 0.23 W/cm K^{-1}, Electrical conductivity; 6.0% IACS, C.T.E; 30 x 10^{-6} K^{-1}, Bonding Strength: 20 GNm^{-2}.

Pb95.5Ag2.5Sn2: Melting-range; 299-304°C, Thermal conductivity; 0.28 W/cm K^{-1}, Electrical conductivity; 5.7% IACS, C.T.E; 25.0 x 10^{-6} K^{-1}, Bonding Strength: 18 GNm^{-2}.

Pb93.5Sn5Ag1.5: Melting-range; 294-306°C, Thermal conductivity; 0.22 W/cm K^{-1}, Electrical conductivity; 5.2% IACS, C.T.E; 25.0 x 10^{-6} K^{-1}, Bonding Strength: 18 GNm^{-2}.

Pb92.5Sn5Ag2.5: Melting-range; 287-296°C, Thermal conductivity; 0.25 W/cm K^{-1}, Electrical conductivity; 5.5% IACS, C.T.E; 25.0 x 10^{-6} K^{-1}, Bonding Strength: 20 GNm^{-2}.

Availability:

Standard Wire Ø: .020" (0.508mm) and .030" (0.762mm)

Standard Spools: Multiple spooling options are available. Contact Coining Engineering to discuss your requirements.

Custom Solder Wire

Contact Coining Engineering to discuss a custom solder wire designed to meet your requirements.

Direct inquiries may be submitted through our website: www.ametek-ecp.com under Ask An Engineer.

About Coining

Coining Inc., a business unit of AMETEK Electronics Components and Packaging, is a global supplier of solder & braze preforms, custom alloys, multilayer clad materials, precision stamped parts, solder wire, gold and aluminum bond wire and analytical lab services.

t: +1.201.791.4020
f: +1.201.791.1637
coining.sales@ametek.com

Coining, Inc.
15 Mercedes Drive
Montvale, NJ 07645