

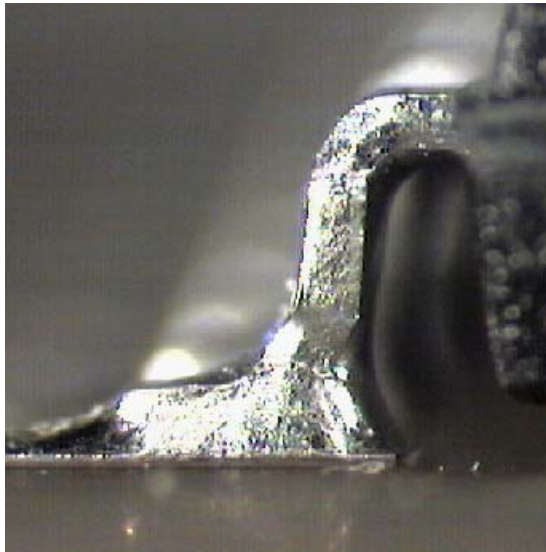
Comment

The visual appearance of a NiPdAu lead finish solder joint is different from a Sn lead finish solder joint due to the physics of the solder process:

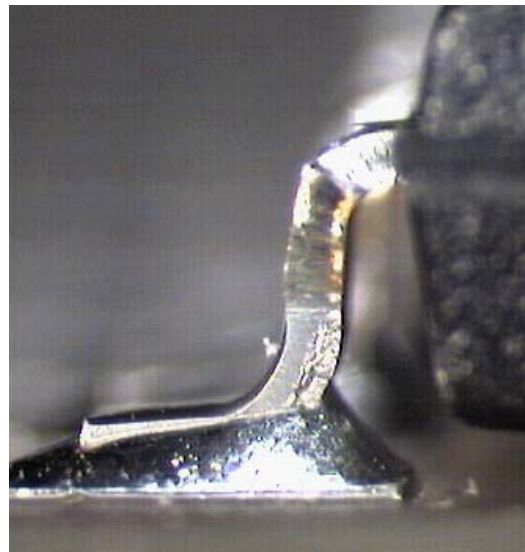
The solder on a solder dipped / plated device is melting during reflow soldering and forming a continuous solder meniscus with the liquid solder paste coming up on the lead sides.

The Au and Pd of the NiPdAu lead finish is dewetted and solved in the liquid solder and the solder connection is done with the Ni layer underneath. The solder will go up on the lead sides until a certain height, dewetting the Au and Pd and performing a solder joint with the Ni. This process will stop at a certain height, depending on the solder liquidity, flux performance and solder wetting angle. Above the soldered line the Au/Pd finish still remains. The line is typically visible on the lead sides of the device. Sometimes this is misinterpreted, as a 'cold solder joint' or 'wetting problem' as known from earlier Sn plated devices, but the solder joint itself is good.

V/M inspection comparison SnAgCu - NiPdAu lead finish:



Solder dipped or plated lead (SOIC)



NiPdAu finished lead (SOIC)

Good wetting performance visible on the NiPdAu lead, backside solder meniscus visible. The visible line between solder paste wetted lead area of the NiPd lead and the non wetted lead above (original lead finish visible) is normal for this lead finish and is no reliability risk. The solder on solder dipped or plated leads is melting when soldering leadfree and therefore a 'continuous' solder coverage is seen after reflow process.