

## Press release

04/25/2019

### **New solder paste from Heraeus enables further reliable miniaturization in automotive electronics**

**For the production of miniaturized electrical systems, such as those used in the automotive industry, solder material must meet extremely high requirements. In response, Heraeus Electronics has developed its new solder paste Microbond SMT650, which guarantees consistently high surface resistance. The combination of the new F650 flux system with the Innolot metal alloy increases reliability and prevents electrochemical migration even under the most extreme environmental conditions.**

Cars today are rolling technology giants. To accommodate all the electronics necessary means that individual components must be smaller than ever. Miniaturization – and the corresponding ever shrinking distances between the conductor paths – lead to higher electrical field strengths. This increases the risk of electrochemical migration. The solution to this problem is the new solder paste Microbond SMT650, the latest addition to the successful Microbond solder paste family.

#### **The right chemistry for greater reliability**

Electrochemical migration, a form of corrosion, affects the reliability and service life of electronic assemblies. The phenomenon is caused by moisture - either during the manufacture of printed circuit boards or due to external influences. An example of this is the control unit in a vehicle, where temperature fluctuations can lead to condensation. The moisture deposited on the printed circuit boards, in combination with flux residues and increased electric field strength, can lead to negative interactions. So-called dendrites form and can ultimately lead to a short circuit.

To prevent this, Heraeus Electronics has developed its new solder paste Microbond SMT650. With its unique material composition, Microbond SMT650 offers a consistently high surface resistance that prevents the risks of electrochemical migration. The chemical composition of the new flux is decisive here. "With the F650 flux system, we have found a very good balance between wetting under nitrogen reflow, excellent pressure properties, and surface

resistance,” explains Manu Noé Vaidya, Product Manager at Heraeus Electronics.

## **Meeting a range of thermomechanical requirements**

In addition, Microbond SMT650 is compatible with many protective lacquers for electronics and printed circuit boards. The specially developed F650 flux system can be combined with a variety of alloys. The patented Innolot alloy is intended for applications with high requirements, such as in the automotive sector.

Innolot contains various metals that increase the service life of the entire electronic assembly through their high thermomechanical stability. In other words, this means longer use at higher temperatures. “For applications with low thermomechanical requirements, Heraeus offers the Microbond SMT650 solder paste with a tin-silver-copper alloy (SAC). This means customers need only minimal effort to qualify which product is best for their application,” says Product Manager Manu Noé Vaidya.

More information is also available at SMT in Nuremberg, Hall 4 Stand 4-240.

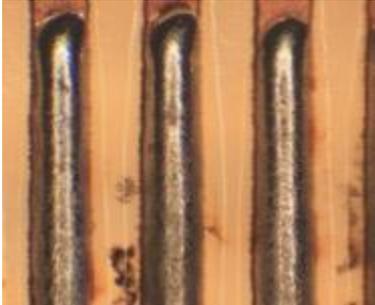
Microbond and Innolot are registered trademarks for Heraeus solder materials.

### **About Heraeus Electronics**

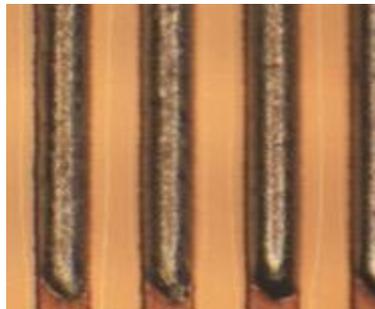
Heraeus Electronics - a Global Business Unit of the Heraeus Group - is one of the leading manufacturers of materials for the packaging of integrated circuits in the electronics industry. The company deals with sophisticated material solutions for semiconductor and automotive industry, consumer goods, energy, industry electronics as well as communications and telecommunications. Core competences include bonding wires, assembly materials, thick film pastes, as well as roll clad strips and substrates. For more information, please visit [www.heraeus-electronics.com](http://www.heraeus-electronics.com).

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Example of electrochemical migration with low surface insulation resistance flux residue



No dendrites with new Heraeus Microbond SMT650