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[Materials] NCKU Presents Advanced Commercially Viable Material for Electronic Packaging

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NCKU News (2012/08/23) A research team led by Kwang-lung LIN, Professor of Materials Science and Engineering at National Cheng Kung University (NCKU), southern Taiwan, has made a breakthrough in semiconductor packaging by developing the Sn-Zn-Ag-Al-Ga solder, a new revolutionary material which excels in terms of reliability and low cost.

The promising properties of the new material have raised local industry's interest to trial run the manufacturing of solder ball from the patented alloy, said LIN, who said the investigation has been extended to semiconductor packaging and testing.

The new alloy has been awarded patents in Taiwan, Japan, and the United States.

The collaborative efforts have successfully produced solder balls of industrial specification with diameters of 0.76mm, 0.50mm, and 0.30mm, according to LIN.

It is proved by performance testing conducted by ASE Inc., the world's largest provider of independent semiconductor manufacturing that the solder ball produced from the patented alloy performs better than the currently available Sn-Ag-Cu solder.

LIN indicated that the cost of the material commonly used in the industry at present has risen dramatically because of soaring prices of metals, especially cooper (Cu).

The newly developed material, which is weighted toward metals that are relatively cheaper, is about 15 percent less expensive than what is available on the market, LIN added.

NCKU under the sponsorship from National Science Council (NSC) started the series of research on semiconductor packing material from 1995.

After more than 7 years of research, LIN said he hopes to work with manufacturers to develop commercial applications of the new material soon.

Reference:
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