

# Pressemitteilung

15. December 2006

## **Glueing instead of soldering – innovation from Hanau revolutionizes the manufacture of electronic components**

Umicore AG & Co. KG in Hanau has succeeded in clearly improving the manufacture of electronic components. Finally power electronics components—such as those used in car making for antilock braking systems (ABS), engine management or window regulators—can be produced to meet environmental standards. Until now manufacturers were technically compelled to use lead, whose disposal is problematic. Using the new conductive adhesive by Umicore the chips are no longer soldered to the substrates, but simply glued.

Today, of course, modern motor vehicles drive on lead-free petrol and low-emissions diesel, and clean exhaust fumes with catalytic converters and particulate filters. Each of us takes for granted the electronic window regulator and relies on systems such as ABS, ESP and DSC when braking, etc. Today, built into every modern vehicle, there are innumerable electronic components and even the familiar automotive mechanic is no longer a vocational training goal. The vocational profile has changed and, for good reason, is now called an automotive mechatronics specialist.

This is why the attention of public policy makers and consumers is no longer focused exclusively on the exhaust-gas limit value. Now, the environmental safety of many electronic parts is also carefully scrutinized. Lead-free electronics is now mandatory, with one exception: power electronics. These are the electronic components in the vehicle which must perform a great deal of work, generating high temperatures as they do, and are also exposed to heat. Until now, for technical reasons, it has not been possible to do without the heavy metal lead in the manufacturing process.

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Every year, tons of the problematic metal is used in the production of power electronics components, not only in car making. Environmentally safe disposal and appropriate recycling are correspondingly complicated and expensive. The leaden days in the power electronics manufacturing plants can soon be a thing of the past as well. Because the adhesive developed by the Hanau based technology leader Umicore has eliminated the need to solder electronic components or electronic chips with solder pastes containing lead. They are quite simply glued with a new conductive high-tech adhesive onto a substrate.

Why did nobody think of the idea earlier? "We did, but the technical requirements placed on the adhesive bond are extremely high," says the leading researcher in the business line Microbond – Electronic Packaging Materials at Umicore, Dr. Muriel Thomas. "No adhesive was able to work under the enormous temperature fluctuations. It was not until a specially treated copper powder was developed that we were able to move forward in the right direction."

It is especially practical that the new product can also be put to use immediately. As for the makers of electronic components this involves practically no changes. Without making any modifications they can immediately use the new adhesive in their machines. Simply put: lead based solder pastes out and environmentally sound adhesive in. "We assume that our adhesive will nearly completely replace current materials. At least by the time lawmakers eliminate the existing exception for lead in power electronics," explains Stefan Merlau, head of Marketing and Sales. "Employees at Umicore in Hanau are also somewhat proud of how here, after catalytic converters, particulate filters and precious metal recycling, they were also able to set a new worldwide standard in environmental safety in this field. After all, the mission at Umicore is: **Materials for a better life**, adds Werner Appel, the company's press spokesman.

The example of Umicore in Hanau shows is an impressive demonstration of how effective and innovative products made-in-Germany continue to be today, especially in international comparison. Once again the view seems to be confirmed that economic success and environmentally friendly products need not rule each other out, on the contrary.

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## PROFILE

Umicore is a materials technology group. Its activities are subdivided into four business areas: Advanced Materials, Precious Metals Products and Catalysts, Precious Metals Services and Zinc Specialties. Each business area is, in turn, divided into market-focused business units.

Umicore focuses on application areas where it knows its expertise in materials science, chemistry and metallurgy can make a real difference, be it in products that are essential to everyday life or those at the cutting edge of new technological developments. Umicore's overriding goal of sustainable value creation is based on its ambition to develop, produce and recycle materials in a way that fulfills its mission: Materials for a Better Life.

The Umicore Group has industrial operations on all continents and serves a global customer base. In 2005 it generated a turnover of EUR 6.6 billion and currently employs some 16,000 people.

Further information available from:

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