



New research compares antimicrobial efficacy of copper and silver

Brussels, September 18th 2009: Silver and copper have been used for their antimicrobial properties for centuries. Now, manufacturers are incorporating these metals into healthcare, food industry and even some consumer products, and making antimicrobial claims. In particular, there are several companies that create silver-ion coatings that can be applied to various surfaces, from work surfaces to door handles, which are then marketed as antimicrobial; some products claim to be effective against MRSA, a potentially deadly hospital-acquired infection. A study published in the most recent issue of *Letters in Applied Microbiology* answers the question of whether these applications work under real-life conditions.

Materials containing silver-ions have been shown to be effective under conditions of high temperature (35°C) and high humidity (90 percent or higher relative humidity), but until this study, they had not been tested at lower temperature and humidity levels typical of indoor environments, such as those found in hospitals. The researchers used copper alloys as a point of comparison because laboratory testing has shown that they are effective in reducing over 99.9 percent of bacteria within two hours at room temperature (22°C) and normal humidity.

The study tested survival rates of MRSA on two types of silver-ion coated surfaces, five copper alloy surfaces and a stainless steel surface. The silver ion materials showed only minimal bacterial reduction at 20°C and 22 percent humidity. The stainless steel, which served as the experimental control, showed no measurable antimicrobial efficacy at any temperature or humidity level, as was expected.

Previous laboratory studies have demonstrated copper's broad spectrum antimicrobial efficacy at room temperature and humidity against bacteria (MRSA, *Clostridium difficile*), fungi (*Aspergillus niger*) and viruses (including Influenza A (H1N1)). Following a review of such detailed scientific data, copper has been officially recognised in the United States by the Environmental Protection Agency, and copper, brass and bronze alloys are now registered to make public health claims.

Copper's exceptional antimicrobial performance in the laboratory, under typical indoor conditions, has led to a clinical trial now under way at Selly Oak Hospital in Birmingham, the first results of which showed a 90 – 100 percent reduction in bioburden on copper alloy surfaces (door handle, push plate, toilet seat) compared with non-copper surfaces. Clinical trials are also ongoing in the United States, Germany and Chile.

Notes for editors:

The study in *Letters in Applied Microbiology* can be viewed at:

<http://www.copperinfo.co.uk/antimicrobial/downloads/effects-temperature-humiditycomparing-silver-and-copper.pdf>

For further information, contact:

About the European Copper Institute

The European Copper Institute (ECI) is a joint venture between the world's mining companies (represented by the International Copper Association, Ltd) and the European copper industry. Its mission is to promote copper's benefits to modern society across Europe through its headquarters in Brussels and its network of eleven national Copper Development Associations.

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