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## Reducing the Growth and Spread of Legionella

According to a new study<sup>1</sup> copper pipes reduce the growth and spread of the bacteria responsible for Legionnaires' disease. Legionella concentration in water conveyed by copper pipes was found to be 90 percent less than in cross-linked polyethylene pipes, one of the most commonly used types of plastic piping in plumbing.

Dr John V Lee, a Consultant Clinical Scientist and expert on the detection and control of Legionella at the Health Protection Agency commented on the findings, "There have been a number of reports indicating that biofilm formation, and the growth of Legionella in particular, is less on copper than alternative piping materials. The results of this study follow this trend, suggesting that copper not only supports less Legionella but it is also easier to disinfect than polyethylene pipes with water at 60°C, the conventional control measure in hot water systems."

"This study provides further evidence that copper is the material of choice for plumbing hot water systems where the control of Legionella is important" Dr Lee went on to say.

The study also emphasizes the importance of keeping hot water at a minimum temperature of 60°C and cold water below 20°C at the point of use. The greatest reduction in the number of bacteria is achieved when these recommended temperatures are used in combination with copper piping.

Copper has exceptional resistance to high temperatures and so can withstand the high temperature rinsing procedure necessary to treat Legionella contaminated systems. Angela Vessey, Director of Copper Development Association, says: "Today's preventative treatments and disinfecting techniques are carried out at higher temperatures to reduce flushing time. One of the benefits of copper is that it remains unaffected by higher temperature cycles over the lifetime of a water system."

Copper's ability to stop bacteria from growing is advantageous for applications such as plumbing, coins, door handles and medical equipment. Other recent studies, carried out by a number of microbiology research centres, have also shed light on copper's positive role in combating *Listeria*, *E.coli* 0157 and staphylococci, three other highly pathogenic bacteria.

Legionnaires' disease is an infection caused by *Legionella*-type bacteria. The culprit is a germ found in aquatic environments, and especially in sanitary facilities that produce a spray (showers, saunas, spas, etc.). Three factors encourage the proliferation of these bacteria: a temperature ranging between 25 and 45°C, the presence of organic deposits and sediments, as well as water stagnation.

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**Notes to Editors:**

1. Study was undertaken by KIWA, the Dutch water quality research Institute. Published in the Netherlands' Intech Journal, 2003. The study simulated domestic usage of different hot water distribution systems for just under one year. The spread of the bacteria *Legionella pneumophila*, which is responsible for 90% of cases of Legionnaires' disease was analysed. A translation of the full report is available from Simon Bear at The RED Consultancy.
2. Spokespeople available for comment - Dr John Nuttall PhD BSc CEng FIMMM, ECI Project Manager.

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