

COPPER REDUCES RISK OF LEGIONNAIRE'S DISEASE

A new study undertaken by KIWA, the Dutch water quality research Institute, has shown that using copper pipes reduces the growth and proliferation of the bacteria responsible for Legionnaire's disease.

By simulating domestic usage of different hot water distribution systems for just under one year, the study analysed the proliferation of the bacteria *Legionella pneumophila*, responsible for 90% of cases of legionnaire's disease. The experiments showed that **the Legionella concentration in the water conveyed by copper pipes was 10 times less** than in cross-linked polyethylene pipes (PEX).

To prevent proliferation, the KIWA study emphasises the importance of always keeping hot water at a minimum temperature of 60°C (or more depending on legislation) and cold water below 25°C (or less depending on legislation) at the point of use. In cases of contamination, one of the most efficient treatments is to rinse the installation at a high temperature. **The study clearly shows that these procedures achieve the greatest reduction in the number of bacteria when used in combination with copper piping.** Copper's exceptional resistance to very high temperatures is another major advantage in the struggle against the proliferation of *Legionella*.

Legionnaire's 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. Legionnaire's disease above all causes lung infections. The benign form is similar to flu and will pass without treatment in 2 to 5 days, often before Legionnaire's disease has even been diagnosed. The severe form of legionnaire's disease mainly affects more vulnerable people (chain smokers, people with chronic lung disease, the elderly, etc.). The incubation period runs from 2 to 18 days. The initial symptoms resemble the flu, then a fever emerges (39.5°C) and the patient starts to feel dizzy and experience abdominal pains (nausea, vomiting). Two fatal complications are possible: major respiratory failure and acute renal failure. In over 10% of cases, Legionnaire's disease is fatal; in other cases, patients can continue to suffer its after-effects for up to five years after contracting the disease.

Copper's bacteriostatic and mechanical properties explain why it is used in many current applications from piping, coins, door handles, not to mention cooking utensils and medical equipment. Other recent studies carried out by different microbiology research centres have also shed light on copper's positive role in combating *Listeria*, *E.coli* 0151 and staphylococci, three other highly pathogenic bacteria.

The results of the KIWA study were published in the Netherlands in the May and June issues of the journal *Intech* and in the 30 May issue of the journal *H2O*.

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