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Legionella Testing

A Practical Guide to Legionella & Water Safety

What is Legionella?

Legionella is a Gram negative, rod-shaped bacteria found in freshwater environments such as rivers, reservoirs, lakes, streams, and some soils. As water supplies such as tap water are drawn from these sources, normal tap water will contain levels of Legionella.

There are over 60 species of legionella, with at least 26 species having been linked to human infections. Some Legionella species become dangerous when they colonise and multiply in man-made water systems, especially where water is warm (20 - 50°C) and stagnant.

Common sources include cooling towers, hot tubs, decorative fountains, plumbing systems, showerheads, taps and spa pools.

Legionella transmission

Transmission occurs mainly through inhalation of aerosolised water droplets (aerosols) containing Legionella. These aerosols are very small (1 - 3µm) and are small enough to penetrate deep into the lungs. Particles of this size are too small to be seen with the naked eye.

It is a common misconception that if the water droplets are too large to penetrate the lungs when produced that there is little risk. However, larger droplets will shrink by evaporation to leave an aerosol of around 1µm containing a bacterial cell. Such aerosols are effectively “dry” as they will not be felt on contact with skin as a wet mist. These aerosols can persist for prolonged periods of time and travel considerable distances.

What does it do?

Legionella causes legionellosis, including Legionnaires’ disease and Pontiac fever. Higher-risk groups include people over 50, smokers, and those with chronic lung conditions or weakened immune systems.

Legionnaire's disease is a severe form of pneumonia. Symptoms include high fever, cough, breathing difficulty, chest pain, gastrointestinal issues, and confusion. Severe cases may lead to respiratory failure, shock, or multi-organ failure if untreated.

Pontiac fever is a milder flu-like illness. The main symptoms are fever, chills, headache, malaise and muscle pain (myalgia). No deaths are associated with this type of infection.

The species *Legionella pneumophilia* causes the majority of severe infections, however there are at least 26 other species that have been linked to infections to humans and where conditions are good for the growth of *Legionella pneumophilia*, these conditions are also good for the growth of all Legionella species.

What is the legal position in the UK

Key legislation includes:

- The Health and Safety at Work etc. Act 1974, Control of Substances Hazardous to Health (COSHH) Regulations 2002
- Management of Health and Safety at Work Regulations 1999.
- HSE Approved Code of Practice (ACoP) L8 outlines duties such as conducting risk assessments and appointing a responsible person.

Under general health and safety law, an employer or person in control of a premises (e.g. a landlord), has health and safety duties and needs to take suitable precautions to prevent or control the risk of exposure to legionella.

A competent person must carry out a Risk Assessment to establish any possible exposure risks. A competent person is someone with the necessary skills, knowledge and experience to manage health and safety, including the control measures.

This Risk Assessment will be used to decide steps that will be required to manage the risks.

These steps may include:

- Ensuring that the release of water spray is properly controlled
- Avoiding water temperatures and conditions that favour the growth of legionella and other micro-organisms
- Ensuring water cannot stagnate anywhere in the system by keeping pipe lengths as short as possible or by removing redundant pipework
- Avoiding materials that encourage the growth of legionella
- Keeping the system and the water in it clean
- Treating water to either kill legionella (and other microorganisms) or limit their ability to grow.

It may, as part of the risk assessment, be necessary to test water systems for Legionella.

It is not possible to control Legionella by testing; the purpose of testing is to determine the effectiveness of the control measures.

There is guidance in L8 on the acceptable levels of Legionella bacteria in water systems. It should be clearly noted where L8 details Legionella levels per litre in water, it refers to Legionella species, **not *Legionella pneumophilia.***

Accredited legionella testing

Eurofins Water Hygiene Testing UK Ltd. operates five UKAS-accredited (nos. 9658 and 1369) laboratories offering Legionella testing strategically located across the UK:

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