

Testing for *Legionella pneumophila* with Legiolert® in the UK

Frequently Asked Questions



How can dutyholders ensure they are fulfilling their responsibilities to reduce the risk of Legionnaires' disease?

The Health and Safety Executive's (HSE) Approved Code of Practice (ACoP) Legionnaires' disease: the control of legionella bacteria in water systems (L8, 4th edition)¹ provides clear guidance on the legal requirements relating to managing risks from exposure to Legionella and the measures that need to be taken to do this effectively. Central to this is risk assessment and the application of suitable control measures. Periodically, checks need to be made on the water system to make sure that the control measures that are applied are being effective. These are described in HSE's technical guidance series HSG274². Dutyholders must also appoint someone competent (the 'responsible person') to take day to day responsibility for managing risks identified in the assessment and to ensure that control measures remain effective. Keeping records of control measures and the results of monitoring is a central component of these responsibilities.

If dutyholders follow the advice in ACoP L8 and the guidance in HSG274, this will usually be enough to comply with the law. HSE makes it clear in these documents that **dutyholders may use alternative methods to those set out in the ACoP and still comply with the law**. However, any alternative measures must be at least as effective as those advised in the ACoP and guidance.



What requirements must dutyholders meet for water monitoring?

There are no blanket requirements that specify Legionella monitoring according to HSG274. In fact, the guidance states that, for domestic hot and cold water systems, microbiological monitoring *"is not usually required, unless the risk assessment or (information from other) monitoring indicates there is a problem."* Microbiological monitoring can be an effective tool to check whether control measures remain effective, and also to identify and understand risks, so they can be controlled:

"2.120 Legionella monitoring should be carried out where there is doubt about the efficacy of the control regime or it is known that recommended temperatures, disinfectant concentrations or other precautions are not being consistently achieved throughout the system."



Can dutyholders use *Legionella pneumophila* testing results for their risk assessments?

Yes. All references to Legionella monitoring in HSG274 are at the genus level, e.g. references to "legionella bacteria". The guidance does not specifically recommend monitoring particular species of Legionella, such as *Legionella pneumophila*, neither does it say that all species within the genus must be tested for. However, according to Public Health England (PHE) *L. pneumophila* causes more than 99% of confirmed cases of Legionnaires' disease in England and Wales³.

The dutyholder, or the responsible person (on behalf of the dutyholder) is expected to make a determination as to the specific Legionella monitoring information that needs to be gathered and used to assess the efficacy of risk control measures, in terms of number and frequency of samples collected, where they are taken from in the system and also the bacteria targeted for analysis. Accordingly, the dutyholder may comply with the provisions of the

ACoP by using information about the numbers, if any, of *L. pneumophila* in its domestic hot and cold water systems to make an assessment of the health risks to the building occupants/users. Dutyholders are obliged to take appropriate actions based on the monitoring results. Testing specifically for *L. pneumophila* means that the presence (or otherwise) of the most hazardous and clinically significant type of Legionella can be ascertained and if it is found in a water system, appropriate remediation can be applied. If *L. pneumophila* is found, it is likely that conditions exist within the water system that could allow other, less important species to grow also, but the significance of this is likely to be questionable, given the PHE Legionnaires' disease statistics showing that *L. pneumophila* is the primary concern.



Can dutyholders use Legiolert® testing results for their risk assessments?

Yes. There are no legal restrictions on the use of Legiolert® for microbiological monitoring of Legionella control measures.

- ✓ **Legiolert meets the alternative method criteria recommended by HSG274.** HSG274 recommends that analysis “should be performed in UKAS accredited laboratories with the current ISO standard (ISO 11731:2017) methods for the detection and enumeration of legionella included with the scope of accreditation.” However, HSE guidance also explicitly allows the use of methods other than ISO 11731 stating, “Alternative quantitative testing methods may be used as long as they have been validated according to ISO 17994 and meet the required sensitivity and specificity.” Legiolert is a quantitative culture method which meets these criteria: Legiolert has been validated according to ISO 17994, was also granted NF Validation by AFNOR certification (N. IDX 33/06-06/)⁴ and was demonstrated to achieve the required sensitivity and specificity during this rigorous process.
- ✓ **Legiolert is included in the Legionella blue book as a recommended method.** The UK Standing Committee of Analysts (SCA) blue books are “intended to provide authoritative guidance on recommended methods of sampling and analysis.” After receiving the AFNOR certification and based on data from multiple published studies, Legiolert was accepted into the 2020 edition of the SCA blue book, *The determination of Legionella bacteria in waters and other environmental samples (2019) – Part 2 – Culture Methods for their detection and enumeration*⁵ as “Method C – The detection and enumeration of *Legionella pneumophila* by a diagnostic substrate.”
- ✓ **The Legiolert method meets the HSG274 recommendation to use a culture-based method with a limit of detection of less than 1 in 10 ml of sample.** According to HSG274, “The laboratory should also apply a minimum theoretical mathematical detection limit of less than or equal to 100 legionella bacteria per litre of sample for culture-based methods.” Legiolert is a culture method and the Legiolert potable protocol exceeds the performance advised in HSE guidance by a factor of ten, detecting less than or equal to 10 *L. pneumophila* per litre of sample.



Can I use results stated in MPN to demonstrate that we are taking appropriate actions relative to HSE guidance?

Yes. Yes. MPN are recognized as equivalent units of measure to CFU by regulators around the world and methods that report in MPN are included in UK Blue book and are recognized in ISO, EN-ISO and AFNOR standards. The Water Management Society's Rapid Microbiology Industry Liaison's factsheet for Legiolert documents that the results from MPN testing are scientifically equivalent to cfu/volume of water tested.

The MPN method specifically detects *L. pneumophila*, whereas standard plate count methods, although optimised to detect *L. pneumophila*, will also detect other, less clinically relevant, species within the genus. The results obtained using MPN for the enumeration of Legionella bacteria can be considered in reference to the action levels published by HSE in its HSG274 guidance series, and also those published by the Department of Health and Social Care in its Health Technical Memorandum (HTM) series, HTM 04-01, for healthcare premises.



IDEXX – Experts in Water Microbiology.

References

1. HSE – <https://www.hse.gov.uk/pubns/priced/l8.pdf>
2. HSE – <https://www.hse.gov.uk/pubns/books/hsg274.htm>
3. GOV.UK – https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/670640/Legionnaires_disease_in_England_and_Wales_2016.pdf
4. AFNOR – Certification is offered by the AFNOR Certification entity, a member of AFNOR Group which also includes AFNOR Normalization. AFNOR Normalization is the French standards body which plays a role similar to the British Standards Institute (BSI) in the UK.
5. SCA – <http://www.standingcommitteeofanalysts.co.uk/library/Full%20numbered%20set%20of%20books/269.pdf>
6. WATER MANAGEMENT SOCIETY – <https://www.wmsoc.org.uk/downloads/RMLG-Legiolerl-Factsheet-Final-1.0.pdf>



N° IDX 33/06 06/19

IDEXX Legiolert®
AFNOR 'NF Validation'
Certified for *Legionella pneumophila* testing in hot and cold sanitary water and cooling tower water.



Blue Book Acceptance

Legiolert® is now specified in the SCA Legionella 'Blue Book' - The determination of *Legionella* bacteria in waters and other environmental samples (2020) Part 2.

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