

## TECHNICAL DATASHEET

# Legionella Culture Method

Traditionally, ALS Environmental have always offered the standard Legionella three plate testing method based on ISO 11731 (Method W5). This method is followed up with an agglutination confirmation that requires an additional incubation period of two days to grow on a neat plate prior to confirmation. This resulted in a two day period on uncertainty with Legionella being reported as “Presumptive”.

In January 2015, ALS Environmental were awarded UKAS ISO 17025 accreditation for the rapid confirmation technique known as MALDI-ToF. This enabled ALS to completely remove the two day “presumptive” period and perform instant confirmation tests on the original Legionella plate. Furthermore, the MALDI-ToF enabled ALS Environmental to provide additional species level identification of the Legionella bacteria present in the sample, with ALS now holding one of the world’s largest Legionella libraries with over 50 different species uniquely distinguishable.

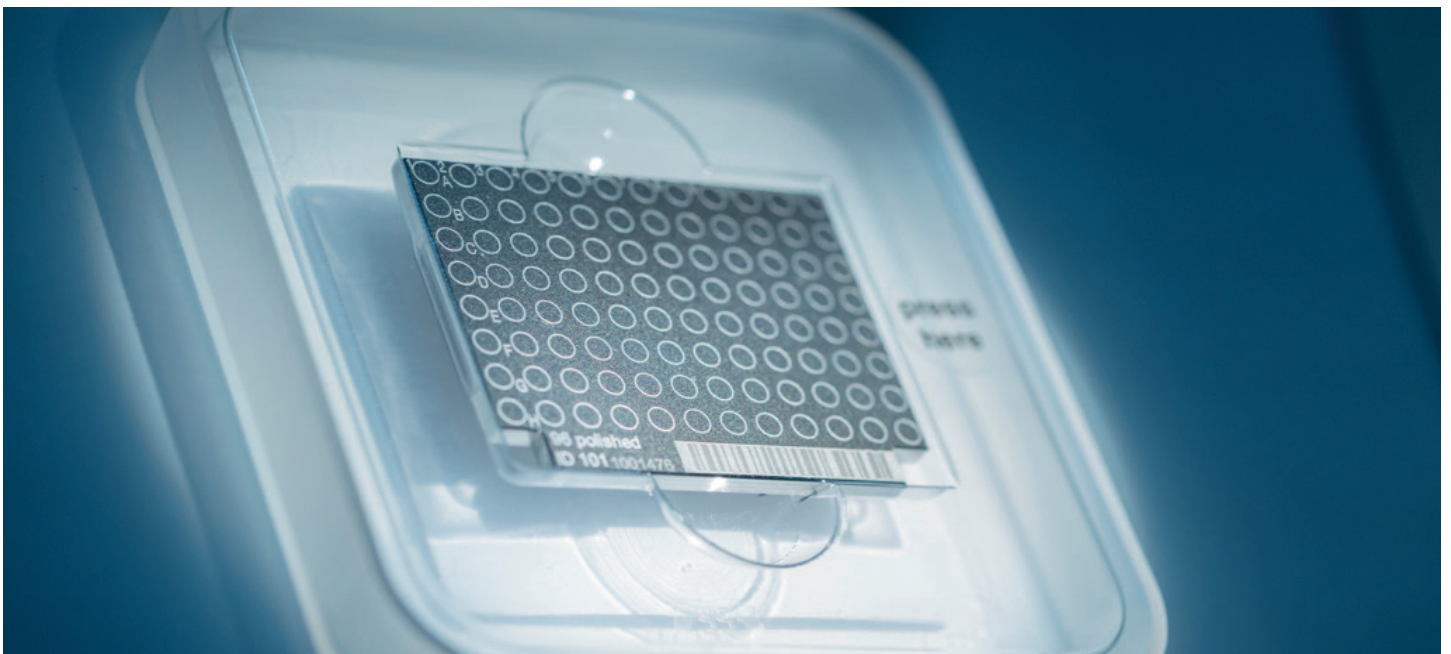
ALS Environmental have a dedicated, purpose-built Legionella facility for the isolation and detection of Legionella bacteria. We are members of the Legionella Control Association and participate in the UKAS accredited External Water Quality Assurance schemes for Legionella Isolations, providing Quality assurance of our ability to all our customers.

### W5 Legionella testing method:

- UKAS accredited for Drinking Water, Process Water and Recreational Waters.
- Suitable for analysis of volumes between 200ml and 10 litres

Under ISO11731, all samples are filtered through a membrane and the membrane is sonicated. After sonication the samples are streaked onto 3 agar plates. One plate is treated with acid, once plate is treated with heat and the final plate is untreated. Once the streaked plates are treated they are incubated for 10 calendar days.

The ALS Environmental method is to read all of the plates on days 3, 7 and 10. With the MALDI-ToF confirmation technique we can instantly confirm the data and will notify clients of any positives via email on the same day as the read. It is possible for a sample to be positive for numerous strains of Legionella or show no signs of Legionella growth until the final read day.



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## Regulatory limits for Legionella analysis:

Action levels following microbial monitoring for cooling towers

AEROBIC COUNT cfu/ml at 30°C (minimum 48 hours incubation)	Legionella bacteria cfu/litre	ACTION REQUIRED
10 000 or less	100 or less	System under control
more than 10 000 and up to 100 000	more than 100 and up to 1000	Review programme operation - A review of the control measures and risk assessment should be carried out to identify any remedial actions and the count should be confirmed by immediate resampling.
more than 100 000	more than 1000	Implement corrective action - The system should immediately be re-sampled. It should then be 'shot dosed' with an appropriate biocide, as a precaution. The risk assessment and control measures should be reviewed to identify remedial actions.

Action levels following legionella sampling in hot and cold water systems

Legionella bacteria (cfu/litre)	Action required
More than 100 but less than 1000	Either: (a) If only one or two samples are positive, system should be resampled. If a similar count is found again, a review of the control measures and risk assessment should be carried out to identify any remedial actions (b) If the majority of samples are positive, the system may be colonised, albeit at a low level, with legionella. Disinfection of the system should be considered but an immediate review of control measures and risk assessment should be carried out to identify any other remedial action required.
More than 1000	The system should be resampled and an immediate review of the control measures and risk assessment carried out to identify any remedial actions, including possible disinfection of the system.

## References:

1) HSE, Legionnaires' disease, The control of legionella bacteria in water systems. Approved code of practice and guidance L8