

**This kit is designed to test for Legionella in risk areas identified by CDC\* such as:**

- > Domestic and industrial hot and cold water systems
- > Pools, hot tubs and decorative fountains
- > Cooling towers
- > Sinks and showers
- > Mistlers, sprinklers, air washers, humidifiers and others

\*Centers for Disease Control and Prevention



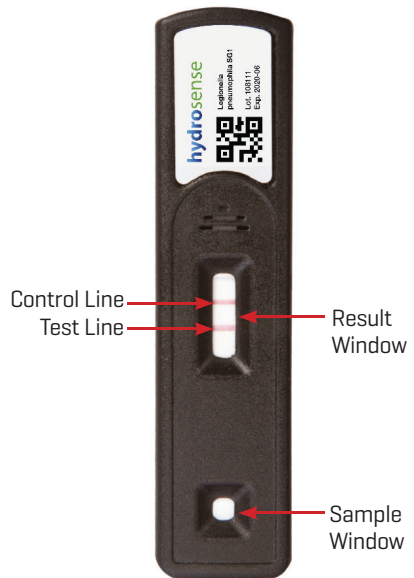
## Overview

This test is used to detect the presence of *Legionella pneumophila* serogroup 1 bacteria in water samples from a wide range of sources. The test operates via a Lateral Flow Immunochromatographic Assay (LFICA). Each kit contains the following:

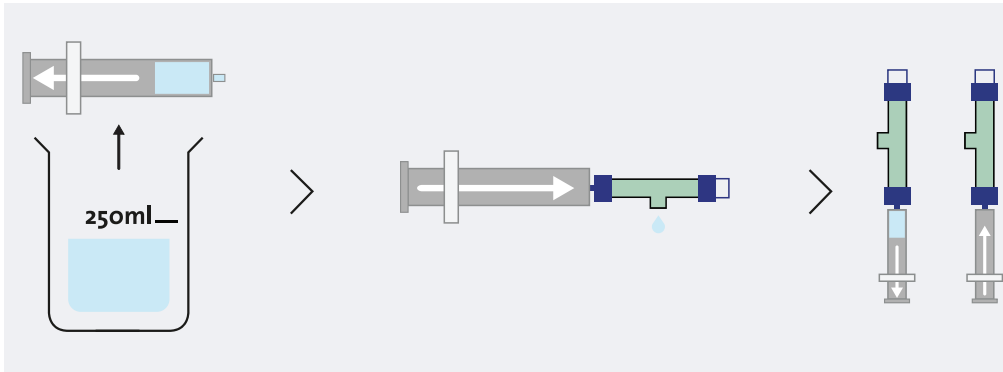
- 1 x individual foil wrapped LFICA test strip
- 1 x hollow fibre filter
- 1 x syringe containing recovery buffer
- 1 x 250 mL beaker
- 1 x 60 mL syringe

The product is intended for use as part of an overall water treatment, management and risk reduction approach and, as all testing methods including lab culture testing, should NOT be used as the sole method for assessing risks associated with *Legionella* bacteria.

This test is intended for the analysis of water samples only. It is NOT intended for the diagnostic testing, in a clinical or medical situation, of Legionnaires' Disease in humans.



## TEST PROCEDURE



For optimum results the test should be performed at room temperature. **The foil wrapped strip should NOT be opened until immediately prior to running the test (Step 3).** If the foil is opened and the test is NOT performed within 60 minutes discard the test strip.

### Step 1. Take a sample

Collect a water sample of at least 250 mL in the beaker provided.

1. Use the 60 mL syringe to draw up 50–60 mL of the sample.
2. Remove the Hollow Fibre Filter from the packaging and tighten the end cap.
3. Fix the filter onto the luer lock end of the filled 60 mL syringe.
4. Filter the sample over a sink or other waste water outlet.
5. Repeat this process until the entire 250 mL sample has been filtered. This should take no longer than 10 minutes.



**Avoid generating aerosols when collecting or handling samples.**

### Step 2. Recover the bacteria

Disconnect the filter from the 60 mL syringe. Discard the syringe. Hold the filter vertically with the cap at the top and the open end pointing towards the floor. Remove the cap from the top of the filter and screw it onto the open end at the bottom of the filter. Remove the red cap from the Small Red Capped Syringe of recovery buffer. Attach the syringe to the uncapped end of the filter with a twist and turn movement. Turn filter and syringe around so the syringe is at the bottom.

1. Pull the plunger of the syringe back to the **0.5 mL** mark to re-suspend the recovery buffer, then push the syringe all the way to the **0 mL** mark.
2. Repeat Step 1, twice [total of 3 flushes].
3. Draw the syringe back to the **0.5 mL** mark to collect the sample then slowly push the syringe plunger in to the **0.1 mL** mark. Avoid creating air bubbles in the collected 0.1 mL sample. If necessary push and pull the syringe plunger again to remove any air bubbles. Disconnect the syringe from the Fibre Filter.
4. The syringe now contains **0.1 mL** of any recovered bacteria ready for testing.

**Incorrect use of the syringe can cause flooding of the test (too much sample added) or failure to run (insufficient sample added). Please ensure that correct amount (0.1 ml) of sample has been collected.**

**This is very important and failure to follow this instruction can lead to invalid tests.**

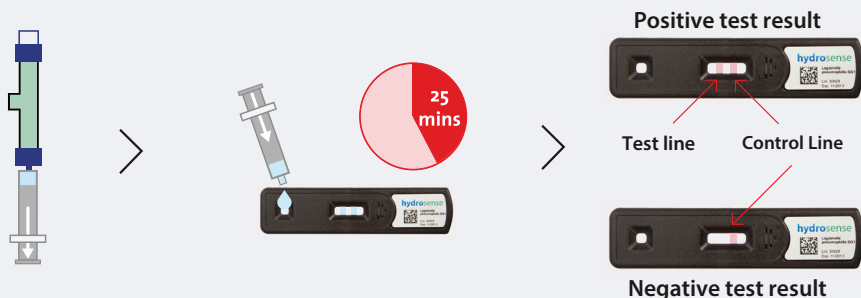
### Step 3. Add sample to test strip

Now, remove the test strip from its foil wrapping, and place it on a flat surface.

Place the recovery buffer syringe over the small sample window at one end of the test strip. Depress the plunger to dispense the 0.1 mL of recovery buffer, containing any bacteria, onto the test strip.

**RECORD THE TIME.** Allow the test to develop at room temperature for **25 minutes**. Leave the test strip sitting on a flat surface during development.

x3



#### Step 4. Interpreting the results

After 25 minutes, examine the test strip in good lighting. The free Hydrosense smartphone app can be used to read the test accurately and record test results. If the test is not read within 30 minutes of adding the water sample, it should be discarded and a new test should be run.

The test strip should show one of the following results in the large result window on the strip:

- **Two RED lines** across the result window. The red line closest to the sample window may be very faint (pale pink). Any distinct line, no matter how faint should be considered to be a **POSITIVE** result.

OR

- **One RED line** across the result window at the end furthest from the sample window. This is a **NEGATIVE** result.

#### Positive Results

A positive test result indicates that *Legionella pneumophila* serogroup 1 was present in the sample above the detection limit.

If a positive result is observed, consult your risk management plan or seek advice from a water management specialist immediately.

#### Negative Results

A negative result indicates that *Legionella pneumophila* serogroup 1 was not detected and the concentration was below the detection limit of the test.

#### Invalid Tests

In the unlikely event that a test does not show any red lines, or if it only shows a line at the end closest to the sample window, or if the line furthest from the sample window is very faint, then the test result is invalid. Repeat the test.

#### Performance Factors

The test does not differentiate between viable and non-viable organisms. The test will detect dangerous viable but non-culturable bacteria, which cannot be detected by traditional laboratory techniques. A positive result does not necessarily mean that viable bacteria are present.

A negative result does not mean that the system is completely free from risks associated with *Legionella* bacteria.

The test detects *Legionella pneumophila* serogroup 1.

Visit [www.lamotte.com](http://www.lamotte.com), contact your supplier or email [tech@lamotte.com](mailto:tech@lamotte.com) to troubleshoot the test.

**Watch the instructional video at**  
**<http://bit.ly/SingleKit>**

## Limit of detection

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Laboratory analysis has demonstrated that tests are positive for clean water samples containing 100 CFU/Litre *Legionella pneumophila* serogroup 1. The limit of detection (LOD) of the test is equivalent to 100 CFU/L when a 250 mL sample is filtered. If smaller volumes are processed the detection limit will be altered accordingly.

Suspended solids content in water samples affects filtration and test performance, including analytical sensitivity. Actual results will vary. Water samples with high levels of suspended solids may block filtration entirely. *L. pneumophila* serogroup 1 bacteria recovery from water samples can range from <10 to 100%, depending on water sample composition. This is similar to filtration concentration techniques used in other microbiological analysis methods.

## Test operating limits

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The test has been evaluated for operation on samples between 10–45 °C (50–113 °F). The test has been validated for samples that filter in less than 10 minutes. Samples requiring greater than 10 minutes to filter may give erroneous results. Samples requiring long periods to filter may be indicative of poor system maintenance.

A wide range of non-oxidizing biocides and biodispersants have been checked for cross reaction and interference with the test.

The test should not be used on systems treated with biguanide or tetrakis hydroxymethyl phosphonium sulfate (THPS) based biocides.

## Specificity

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The test has been shown to be non-reactive with the following bacteria [at 1x10<sup>8</sup> organisms per sample]:

- *Acinetobacter calcoaceticus*
- *Aeromonas hydrophila* subsp. *Hydrophila*
- *Bacillus subtilis*
- *Burkholderia cepacia*
- *Citrobacter freundii*
- *Citrobacter koseri*
- *Enterobacter cloacae*
- *Escherichia coli*
- *Klebsiella oxytoca*
- *Pseudomonas aeruginosa*

- *Pseudomonas fluorescens*
- *Pseudomonas putida*
- *Pseudomonas stutzeri*
- *Ralstonia pickettii*
- *Raoultella terrigena*
- *Streptococcus pyogenes*
- *Yersinia ruckeri*

Organism	≥cfu/mL
L.p Sg-2,3,8,11,13,14	1.00E+08
L.p. Sg-4,5,6,7,9,10,15	1.00E+07
L.p. Sg-12	8.00E+06
<i>S. aureus</i>	2.00E+08

The *Legionella pneumophila* Sg-1 test has been shown to produce weak positive results with other *Legionella pneumophila* serogroups and *S. aureus* at the cfu/mL stated in the above table.

## Storage

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The test is intended for storage at room temperature 18–22 °C (64.4–71.6 °F). Do not freeze. When stored correctly, the test will continue to operate within design specification, until the specified expiration date.

Do not use the test strip or the recovery buffer syringe after the date specified on the packaging of the test strip. Do not use any test strip where the foil packaging is perforated.

## Disposal

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The test strip, filter, syringe and caps cannot be reused or recycled.

## Disclaimer

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