

# Lovibond® Water Testing

Tintometer® Group



## Legionella Detection Test Kits



### The World's Fastest *Legionella* Test

- Fast, easy and accurate - Results in as little as 25 minutes!
- Confirms performance of *Legionella* prevention and treatment protocols
- Test Kits available for detecting both waterborne and biofilm *Legionella*

[www.lovibond.com](http://www.lovibond.com)

# Technical Information

Legionella is a bacteria which can cause a pneumonia-like disease called "Legionnaires' Disease". Legionnaires' Disease is fatal in approximately 15-20% of people infected with the bacteria. Infection occurs when the bacteria is inhaled from aerosols of contaminated water. Aerosols can be produced anywhere water is splashed or sprayed, but some of the most common sources associated with Legionnaires' Disease are cooling towers and showers.

Within the Legionella genus there are approximately 50 different species. Several of these can cause infections in people, however worldwide over 90% of infections are caused by a single species: Legionella pneumophila. The particular "serogroup 1" of pneumophila causes the vast majority (>80%) of all cases, and is implicated in virtually all major outbreaks.

Legionella bacteria are naturally occurring bacteria that live in soil and water. Normally the "background" level of bacteria is so low that they are unlikely to cause an infection, however once introduced to man-made water systems, the bacteria can quickly multiply and present a health risk. Under the right conditions, Legionella bacteria can double in number every 90 minutes, meaning that a very low level of bacteria could become thousands of times higher in one or two days.

Legionella have been found in a wide range of systems including hot and cold water systems (both large systems serving public buildings and small systems in people's homes), cooling towers and some forms of air conditioning systems, on-board ships, airplanes and trains, water fountains, food misters, whirlpool spas and even in car washes.

## How It Works:

Our *Legionella* test kits use an immunochromatographic assay to detect the presence of cell surface antigens from *Legionella* bacteria in a sample. This rapid test is a very useful addition to periodic laboratory culture tests for *Legionella*. **It should not be used as the sole method for assessing the presence of Legionella. If results with this rapid test indicate the presence of Legionella, then confirmation with a laboratory culture test is essential.**

With all of the different test kits, a sample is taken, prepared according to the specific test procedure, and the sample is dispensed onto a test strip. The presence of antigen causes the "Test Line" to turn red in color. A "Control Line" is included which always turns red on successful completion of the test. This test can provide a rapid indication of the presence of Legionella pneumophila serogroup 1, the most commonly recorded cause of Legionnaires Disease.

Example of a new test



Example of a positive test



Example of a negative test



**Positive Results:** A positive test result indicates that Legionella pneumophila serogroup 1 bacteria were present in the sample above the detection limit. The test does not differentiate between viable (living) and non-viable (dead) organisms. The test will detect viable but non-culturable bacteria which are not detectable by traditional laboratory techniques. A positive result does not necessarily mean that viable bacteria are present.

**Negative Results:** A negative test result indicates that Legionella pneumophila serogroup 1 bacteria were not detected or the number of bacteria in the sample were below the detection limit. A negative result does not mean that the system is completely free from risks associated with Legionella bacteria as the test only detects Legionella pneumophila serogroup 1. The test does not detect the presence of other Legionella species or serogroups.

These test kits can be used in a wide variety of sectors including: education, food and beverage, hotels and spas, shipping, pools and whirlpool spas, offshore oil and gas, conventional and nuclear energy, hospitals, nursing homes and many more.

# Field Test Kit

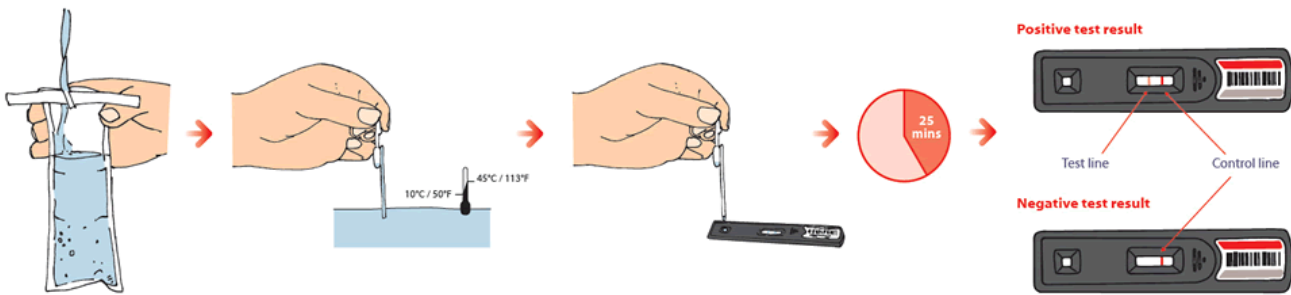
The *Legionella* Field Test Kit is the most basic of the *Legionella* Detection test kits. The test is easy and fast — no reagents or interpretation of results required!

With results in 25 minutes, the test allows for immediate understanding and response to the water conditions. Regular use will increase confidence in your *Legionella* control procedures and reduce risk of outbreaks and litigation!

Users simply collect a water sample in the provided collection bag, and using the provided exact volume disposable pipet, dispense 100 µL of sample onto the test strip. After the required reaction time, the test line will turn red if results are positive.



## How It Works:



<b>Sample Parameters</b>	pH Range: Sample Temperature Range: Environmental Temp. Range: Free Chlorine Concentration: Total Alkalinity Concentration: Total Hardness Concentration:	5 - 10 pH 15 - 45 °C (59 - 113°F) 15 - 40 °C (59 - 104°F) < 5 mg/l (ppm) <1000 mg/l (ppm) <1000 mg/l (ppm)
<b>Lower Limit of Detection</b>	Approximately 105 CFU/L (100 CFL/ml)	
<b>Test Volume</b>	100 µL (exact volume disposable pipette provided)	
<b>Test Development Time</b>	25 minutes	
<b>Operator Time</b>	<2 minutes	
<b>Number of Tests</b>	10	

## Ordering Information:

Description	P/N
<b>Legionella Field Test</b> Includes: 10 Test Strips with Dispensing Pipettes, 10 Collection bags and instructions in a carrying case	56B006001

# Swab Test Kit

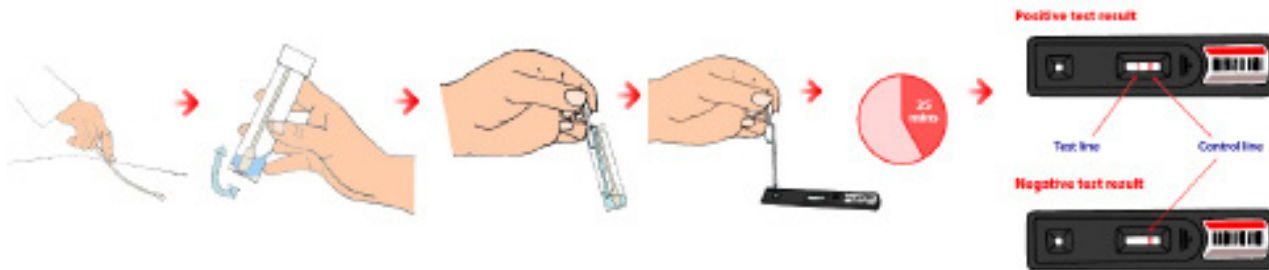
Within a water system *Legionella* usually grow within biofilm (slime) found on the insides of pipe work, shower heads, cooling tower packing, or water tanks. Bacteria found in the planktonic phase (i.e. suspended in the water itself) are usually an indicator of colonization of the biofilm.

Since a clean water sample does not equate to a clean system (proliferation of *Legionella* is greater in a biofilm than in water), this kit can be used to pinpoint the contamination in a system or to demonstrate cleanliness of an area after a targeted cleaning.

Use this kit to find *Legionella* in their breeding ground -- this very selective test can detect *legionella* even in samples with very high background flora. With results in about 25 minutes, the test allows for immediate understanding and response to the water system conditions. Regular use will increase confidence in your *Legionella* control procedures and reduce risk of outbreaks and litigation!



## How It Works:



<b>Lower Limit of Detection</b>	200 CFU per swabbed area
<b>Suggested Sample Area</b>	10 cm <sup>2</sup>
<b>Test Volume</b>	100 µL (exact volume disposable pipette provided)
<b>Test Development Time</b>	25 minutes
<b>Operator Time</b>	1 - 2 minutes
<b>Number of Tests</b>	5

### Ordering Information:

Description	P/N
<b>Legionella Swab Test</b> Includes: 5 Test Strips with Dispensing Pipettes, 5 Swabs, Recovery Buffer, 5 Reaction tubes, and instructions in a carrying case	56B006401

# System Test Kit

The *Legionella* System Test Kit is for detecting *Legionella* in a water sample — it is ideal for on-line and a variety of industrial applications.

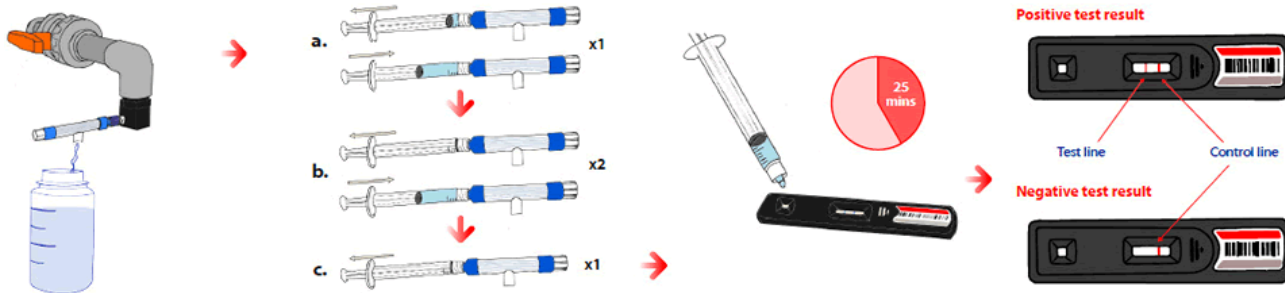
This test procedure utilizes hollow fiber filtration modules which attach directly to the provided sample point fittings (both a 1/2" and 3/4" female threaded fittings are provided). The filtered sample increases the sensitivity of the test.

This filtration step requires no pumping — just connect the sample point fitting to the water system (such as a shower head or on-line sample point) and use the system pressure to drive the filtration. The pre-filled syringes contain the required recovery buffer, so there is no need to measure or dilute solutions.

With results in 30-35 minutes (including sample prep-time), the test allows for immediate understanding and response to the water system conditions. Regular use will increase confidence in your *Legionella* control procedures and reduce risk of outbreaks and litigation!



## How It Works:



<b>Lower Limit of Detection</b>	100 CFU /L (0.1 CFU/ml)
<b>Suggested Sample Volume</b>	250 ml (sample should filter in less than 5 minutes)
<b>Test Volume</b>	100 µL
<b>Test Development Time</b>	25 minutes
<b>Operator Time</b>	5 - 10 minutes
<b>Number of Tests</b>	5

### Ordering Information:

Description	P/N
<b>Legionella System Test</b>	56B006101
Includes: 5 Test Strips with Dispensing Pipettes, 5 Syringes with Recovery Buffer, Sample Collection Jar, 5 single-use filters, female threaded sample point fitting, and instructions in a carrying case	

# Legionella Detection Test Kits

## Enterprise Test Kit

The Enterprise Test Kit offers users a combination of the Swab Test Kit and the System Test Kit.

This version of our test kits is ideal for first time users trying to determine which procedure best fits their processes, or for low-volume users that require both swab and filtration type tests.

With results in as little as 25 minutes, the test allows for immediate understanding and response to the water conditions. Regular use will increase confidence in your *Legionella* control procedures and reduce risk of outbreaks and litigation!

Kit supplies everything required for 4 tests (2x swab test and 2x filtration test).



### Ordering Information:

Description	P/N
<b>Legionella Enterprise Test Kit</b> Includes: 4 Test Strips with Dispensing Pipettes, Recovery Buffer, 2 swabs, 2 single-use filters, 2 x 60 mylsyringes, 2 reaction tubes with Recovery Buffer, and instructions in a carrying case	56B006501

## Single Test Kit

The Single Test Kit is for detecting *Legionella* in a water sample. is ideal for users who require the increased test accuracy associated with a filtered sample.

With results in 30-35 minutes, the test allows for immediate understanding and response to the water conditions. Regular use will increase confidence in your legionella control procedures and reduce risk of outbreaks and litigation!

Kit supplies everything required for 1 test.



### Ordering Information:

Description	P/N
<b>Legionella Single Test Kit</b> Includes: 1 Test Strips with Dispensing Pipette, Recovery Buffer Syringe, Sample Collection Jar, single-use filter, 60 ml syringe and instructions	56B006601

# Technical Information

## Specifications

<b>Bacteria Detected</b>	<i>Legionella pneumophila</i> serogroup 1
<b>Detection Method</b>	Lateral flow immunochromatographic assay
<b>Test Development Time</b>	25 minutes
<b>Shelf Life</b>	18 months from manufacture (stored at room temperature (<30°C) in original packaging)
<b>Specificity</b>	<p>Tested against a wide range of waterborne bacteria, including <i>Acinetobacter calcoaceticus</i>, <i>Aeromonas hydrophila</i> subsp. <i>hydrophila</i>, <i>Bacillus subtilis</i>, <i>Burkholderia cepacia</i>, <i>Citrobacter freundii</i>, <i>Citrobacter koseri</i>, <i>Escherichia coli</i>, <i>Enterobacter cloacae</i>, <i>Klebsiella oxytoca</i>, <i>Pseudomonas aeruginosa</i>, <i>Pseudomonas fluorescens</i>, <i>Pseudomonas putida</i>, <i>Pseudomonas stutzeri</i>, <i>Ralstonia pickettii</i>, <i>Raoultella terrigena</i>, <i>Streptococcus pyrogenes</i>, <i>Yersinia ruckeri</i>.</p> <p>No cross reactions observed at concentrations <math>\leq 10^9</math> CFU/L. <i>Staphylococcus aureus</i> has been observed to cross react with the test at concentrations <math>&gt; 10^8</math> CFU/L. <i>Legionella pneumophila</i> serogroups 4 &amp; 7 cross react with the test at concentrations <math>&gt; 6 \times 10^9</math> CFU/L. The test does not react with any other <i>L. pneumophila</i> serogroups or <i>L. species</i> tested.</p>
<b>Biocides</b>	<p>The product has been tested with a range of common biocides and biodispersants used in <i>Legionella</i> control, at their normal maximum operating concentration. Active ingredients tested include: <i>glutaraldehyde</i>, <i>didecyl-dimethylammonium chloride</i>, <i>isothazoles</i>, <i>dibromonitripropionamide</i>, <i>ionic and non-ionic surfactants</i>. <i>The test gives a false positive if used with polymeric biguanide or THPS.</i></p>

## Why It Works:

- Our test is fast, easy to use, accurate and can be used anywhere, removing the need to transport a sample to a lab. Effectively, you carry the expertise of the lab in your pocket.
- While a positive result is bad news, it is better to know immediately so that you can take remedial action, prevent infection, protect staff and clients and consequently your reputation and business.
- Imagine if your system was infected and you did not know. Without a rapid test, your uncertainty will continue for 10-14 days waiting for laboratory results. During this time you may continue to expose your staff/public or have to shutdown facilities to prevent exposure.
- Once you have taken remedial action, you can use our test to check the impact. Our test will let you know in 25 minutes if there is still a problem.
- Effective remedial action should completely remove all traces of bacteria from your system within 24 hours – giving a negative test result on the test.
- By detecting antigen, rather than relying on culturable cells, our test may give a better warning of *Legionella* growth within a system.

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