

Lovibond® Water Testing

Tintometer® Group



Swab Test Kit



Legionella pneumophila serogroup 1 in Biofilms

Instruction Manual

Part Number: 56B006401

www.lovibond.com

Technical Information

Overview

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. The test operates via a Lateral Flow Immuno-Chromatographic Assay (LFICA).

Each Swab Test Kit contains the following:

- 5 Individually foil -wrapped tests -- each contains an exact volume pipette
- 1 bottle of Recovery Buffer, 65 ml (part number L100119)
- 5 Swabs
- 5 Re-suspension Tubes
- Instructions for use

This test is intended for analysis of biofilm samples only. This product is not intended for clinical or medical diagnostic use. The product is intended to be used as part of an overall water treatment, management, and risk reduction approach and should NOT be used as the sole method for assessing risks associated with Legionella bacteria.

Limit of Detection

The mathematical theoretical limit of detection of the test is equivalent to 200 CFU / swabbed area.

Test Operating Limits

The test has been evaluated for operation between 10-40°C (50-104°F).

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

This test should not be used on systems treated with biguanide based biocides!

Performance of the Swab Test Kit with samples other than those taken from Cooling Towers, Domestic Hot & Cold water systems and Whirlpool spas has not been established.

Specificity

The test has been shown to be non-reactive with the following bacteria (at 1×10^8 organisms per sample):

Acinetobacter calcoaceticus,
Aeromonas hydrophila subsp.
hydrophila, *Bacillus subtilis*,
Burkholderia cepacia, *Citrobacter*
freudii, *Citrobacter koseri*,

Escherichia coli, *Enterobacter cloacae*,
Klebsiella oxytoca, *Pseudomonas*
aeruginosa, *Pseudomonas*
fluorescens, *Pseudomonas putida*,
Pseudomonas stutzeri,

Ralstonia pickettii, *Raoultella*
terrigena, *Streptococcus pyogenes*,
Yersinia ruckeri

Staphylococcus aureus and *Legionella pneumophila* serogroups 4 & 7 in concentrations higher than 1×10^8 organisms per sample may interfere with test results in negative samples.

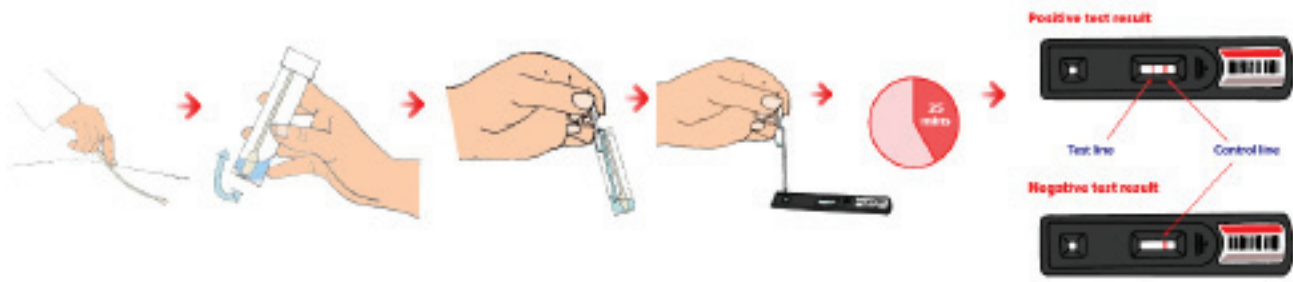
Disposal

The test cannot be reused or recycled. The packaging materials and this instruction manual can be recycled.

Storage

The test is intended for storage at room temperature. Do Not Freeze. When stored correctly, the test will continue to operate within design specifications, until the specified expiration date. **Do not use the test after the stated expiration date specified on the packaging, Do not use any test where the foil packaging is damaged.**

Test Procedure



Collect Biofilm Sample

Identify the water system to be sampled and an appropriate location from which to obtain a biofilm sample. Large systems may need to be sampled and tested at multiple locations. The recommended minimum area to swab is 10 cm². If the surface to be sampled is dry, then pre-moisten the swab in recovery buffer, using the re-suspension tube. Wipe the swab across the area to be tested.

Avoid generating aerosols when collecting or handling samples!

Transfer the swab containing sample to the re-suspension tube and snap off the handle.

Resuspend the Bacteria

Add 2 ml of Recovery Buffer to the re-suspension tube containing the swab sample and screw on the lid. Shake the tube for at least 20 seconds or until the swab has released the biofilm sample into the recovery buffer.

Add Sample to the Test Strip

Remove the test from its foil wrapping, and place the test on a flat surface.

The foil wrapping should not be opened until immediately prior to running the test. If the foil is opened and then the test is not performed within 60 minutes, discard the test.

Before use, the test should have 2 pale blue lines across the result window. If these are not present, notify your supplier to replace the test kit. Take the pipette from the foil wrapping.

Place open end of the pipette into the solution in the re-suspension tube, then squeeze and release the top bulb. This should draw the sample all the way up the long tube and may place a small amount of sample in the bottom of the bulb. Avoid getting air bubbles in the tube -- the pipette filling process can be repeated if necessary to remove air bubbles.

Place the pipette over the small sample window at the end of the test strip, and squeeze the pipette bulb to dispense the correct amount of water onto the test strip.

Record the time.

Read the Test Strip

Leave the test strip sitting on a flat surface during incubation. For optimum results the test results should be performed at room temperature. **After waiting 25 minutes, examine the test strip** in good lighting. If the test is not read within 60 minutes of adding the water sample, it should be discarded and a new test should be run. The test should show one of the following results on the large result window on the test strip:

Negative Result: One (1) RED line across the result window at the end furthest from the sample window.

Positive Result: Two (2) 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 counted as positive.

Invalid Result: If the 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 is invalid. Repeat the test and notify your supplier for technical support.

Test Procedure, continued

Interpreting the Results

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.

When a positive result is observed, seek advice from your risk management plan, or water treatment specialist.

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 necessarily mean that *Legionella* bacteria are absent.

A negative result does not mean that the system is completely free from risks associated with *Legionella* bacteria. The test only detects *Legionella pneumophila* serogroup 1. The test does not detect the presence of other *Legionella* species or serogroups.

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