



# Trusted *Legionella* detection

Confidently and reliably detect and enumerate  
*Legionella* species in water samples

# Background

*Legionella pneumophila* is a major cause of both pneumonia and an acute self limiting febrile disease called Pontiac Fever. *L. pneumophila* serogroup 1 is responsible for the majority of adult *Legionella* infections with serogroup 6 present in a smaller number of cases. Other serogroups of *L. pneumophila* and another 19 species of *Legionella* are associated to a varying degree with human disease<sup>1</sup>.

*Legionella* is unlikely to be transmitted person-to-person but is commonly transmitted through aerosols generated from cooling towers of air-conditioning systems or by use of potable water from domestic hot-water installations, for example, showers<sup>1</sup>.

This guide describes the Thermo Scientific™ Microbiology products that are commonly used for the detection and enumeration of *Legionella* in water.



*Legionella pneumophila* growing on Legionella BCYE Agar with filter

## Regulations and protocols

For effective public health protection and response, the infection and its source must to be identified with full confidence as quickly as possible. Regulations and testing protocols for *Legionella* in water vary between countries and are continually being revised. A standard procedure for the isolation, culture, and identification of *Legionella* has been prepared by the International Organization for Standardization (ISO 11731).

### Methods according to ISO 11731:2017

#### Sample preparation<sup>2</sup>

**Heat treated**—Put sample into water bath for  $30 \pm 2$  minutes at  $50\text{ }^{\circ}\text{C}$

**Acid treated**—1 part sample to 9 parts of acid buffer. Mix well and leave it for  $5 \pm 0.5$  minutes.

**Acid treated filter**—Put 30 mL of acid solution onto the membrane filter. Leave it for  $5 \pm 0.5$  minutes and remove the solution by filtration. Wash with 20 mL of either sterile Aqua dest., Pages Saline, Ringer Solution or PBS.

Samples with high concentration of *Legionella* species and low concentration of interfering organisms<sup>3</sup>

0.1-0.5 mL of the sample onto BCYE

0.1-0.5 mL of the sample onto BCYE with AB

Samples with low concentration of *Legionella* species and low concentration of interfering organisms<sup>3</sup>

Membrane filtration of 100 mL sample<sup>1</sup>. Place one untreated membrane filter onto BCYE Agar; Place membrane filter with acid solution on one or more selective media: BCYE Agar with AB or GVPC Agar or MWY Agar

or

0.1-0.5 mL of the sample; each untreated, heat treated and acid treated from the membrane filtration with washing procedure<sup>3</sup> onto BCYE Agar and on one or more selective media: BCYE Agar with AB or GVPC Agar or MWY Agar

$36 \pm 2\text{ }^{\circ}\text{C}$ , humid atmosphere, 7-10 days

Subculture at least 3 typical *Legionella* colonies from each plate and inoculate on BCYE Agar without Cystein and BCYE Agar

$36 \pm 2\text{ }^{\circ}\text{C}$ , humid atmosphere, 2-5 days

Colonies that grow on BCYE but not on BCYE without cystein are considered to be *Legionella*<sup>4</sup>

# Legionella testing solutions

## Culture media

Rely on high quality media manufactured in our ISO compliant production facilities and supported by a team of experts dedicated to microbiology.

Product name	Dehydrated culture media			Prepared culture media					
	Culture medium base	Growth supplement	Selective supplement	Product code					
				USA	Canada	UK	Europe	ANZ	Singapore/Malaysia
Thermo Scientific™ Legionella GVPC Medium	CM0655	SR0110	SR0152	N/A	MP1208	PO0245A	PO5074A	PP2267	PP1404P90
Thermo Scientific™ Legionella BCYE Medium	CM0655	SR0110	N/A	R01342	MP1204	PO5072A	PO5072A	PP2080	PP1401P
Thermo Scientific™ Legionella BCYE w/o L-Cystein Medium	CM0655	SR0175	N/A	R01334	MP1207	PO0255A	PO5028A	N/A	N/A
Thermo Scientific™ Legionella MWY Selective Medium	CM0655	SR0110	SR0118	N/A	MP1205	PO5071A	PO5071A	PP2082	PP1403P90
Thermo Scientific™ Legionella BMPA Medium	CM0655	SR0110	SR0111	N/A	MP1209	PO0324A	PO5035A	PP2079	PP1402P90

For Legionella culture media products in other countries please contact your local distributor.

## Quality control organisms

Stringent quality control ensures accurate and consistent test results in your microbiology laboratory. Our dedication to quality has driven us to develop a wide selection of reliable, easy-to-use products. Thermo Scientific™ Culti-Loops™ are ready to use, disposable inoculation loops which contain stabilized, preserved, viable microorganisms, for simple and convenient performance testing.

Legionella quality control organisms		
Product name	WDCM no.	Product code
Thermo Scientific™ Culti-Loops™ <i>Legionella pneumophila</i> ATCC® 33152™	WDCM 00107	R4603950
Thermo Scientific™ Culti-Loops™ <i>Enterococcus faecalis</i> ATCC® 19433™	WDCM 00009	R4601990
Thermo Scientific™ Culti-Loops™ <i>Enterococcus faecalis</i> ATCC® 29212™	WDCM 00087	R4607030
Thermo Scientific™ Culti-Loops™ <i>Pseudomonas aeruginosa</i> ATCC® 27853™	WDCM 00025	R4607060
Thermo Scientific™ Culti-Loops™ <i>Pseudomonas aeruginosa</i> ATCC® 9027™	WDCM 00026	R4605210
Thermo Scientific™ Culti-Loops™ <i>Escherichia coli</i> ATCC® 8739™	WDCM 00012	R4607085
Thermo Scientific™ Culti-Loops™ <i>Escherichia coli</i> ATCC® 25922™	WDCM 00013	R4607050
Thermo Scientific™ Culti-Loops™ <i>Legionella pneumophila</i> ATCC® 33823™	WDCM 00107	R4603949

## Diagnostic reagents

Our selection of rapid, easy-to-use identification systems is designed for manual testing or as confirmation for automated test systems.

Diagnostic reagents		
Product name	Quantity	Product code
Thermo Scientific™ DrySpot Legionella pneumophila Serogroup 1 Kit	60 tests	DR0200M
Thermo Scientific™ DrySpot Legionella pneumophila Serogroup 2-14 Kit	60 tests	DR0210M
Thermo Scientific™ DrySpot Legionella species Kit	60 tests	DR0220M
Thermo Scientific™ Legionella Latex Test Kit	50 tests	DR0800M
Thermo Scientific™ Legionella pneumophila Serogroup 1 Latex Test Kit	50 tests	DR0801M
Thermo Scientific™ Legionella pneumophila Serogroup 2-14 Latex Test Kit	50 tests	DR0802M
Thermo Scientific™ Legionella species Latex Test Kit	50 tests	DR0803M



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