

Legionella Sampling Instructions

Understanding Legionella

Legionella is a naturally occurring bacterium, but the main source of human exposure is through building water systems. Conditions conducive to its proliferation include:

- Large and complex plumbing systems
- Stagnant hot water
- A low concentration of residual disinfectant
- The presence of biofilms in rusty tanks, pipes, valves or water outlets

Transmission occurs mainly through **inhalation of contaminated aerosols**, generated by:

- Cooling towers
- Showers
- Spas
- Decorative fountains
- Devices producing steam or droplets

Cooling towers are particularly at risk because, being located high up, they disperse fine droplets of contaminated hot water into the air, facilitating the spread of legionella over large areas.

Health risks

- Inhalation of Legionella can cause two forms of Legionnaires' disease:
- **Pontiac fever** (mild form)
- **Severe**, sometimes fatal pneumonia

These conditions occur more frequently in **summer and fall**.

Prevention

Owners of high-risk installations (cooling systems, decorative fountains, rainwater basins, etc.) must implement a maintenance program and a maintenance logbook that complies with current regulations.

Sampling procedure

General Rules

- Use only **sterile containers provided by the laboratory**.
- Never rinse the containers (presence of sodium thiosulfate).
- Take the sample **at least 48 hours after the last water treatment**.
- If treatment continues: sample taken at any time.
- Sampling recommended **at the beginning of the week**, for receipt before Thursday.

A. Cooling towers and open systems

1. Immerse the container at **45°**, opening at the surface.
2. Leave at least **2.5 cm** of empty space.
3. Do not sample bottom deposits.
- 4. Required protective equipment:**
 - Splash goggles
 - Disposable gloves
 - Avoid aerosol plumes (stop fans if necessary)

B. Faucets

1. Run the water for **30 seconds** to clear the pipe.
2. Clean the faucet with a disinfectant wipe.
3. Fill the container without touching the valve. Leave 2.5 cm of space.
4. Close the container quickly to limit exposure to air.
5. Wipe dry and place in a rigid box with the **analysis forms**.

Note: Refrigeration is not required except during hot weather. Samples must be sent **within 48 hours**.

Recommended frequency and compliance thresholds

(Reference: MD 15161-2013, version 2016 – Public Works and Government Services Canada)

System	Frequency	Volume required	Compliance threshold
Cooling tower	1x/month	200 - 1000ml	<10 000 CFU/L
Decorative fountains	Every 2 months	1000 ml	<1000 CFU/L
Hot water (shower)	Every 6 months	1000 ml	<1000 CFU/L
Hot water (<50 °C)	1x/an	1000 ml	<1000 CFU/L
Drinking water	NA	1000 ml	NA
Waste water	NA	200 ml	NA

Intervention thresholds:

- $\geq 10,000$ CFU/L and $< 1,000,000$ CFU/L: **corrective measures, rechecking**
- $\geq 1,000,000$ CFU/L: **stop dispersion, decontamination, resumption of controls on D+2 and D+7**

AGAT Expertise

Since 2013, AGAT Laboratoires has been **ISO/IEC 17025** accredited for Legionella quantification

Methodology used: **International ISO method**

Contact us for more information or personalized support: info@agatlabs.com

References

- **IRSST (2023)** – Instructions for Use: Samples for the Analysis of Legionella spp.
- **DR-09-11 (2022)** – Sampling Protocol (MELCC)
- **RBQ (2014)** – Explanatory Guide to Cooling Tower Maintenance