

Legionella Bacteria Sampling

Legionella Sampling (Water or Swab)

Objective

- **Routine monitoring:** To detect and quantify the level of culturable *Legionella* species present in the environmental sample.
- **Case investigation:** To recover an isolate from the environment for comparison with clinical isolates.
- **Post remediation:** To determine efficacy of remedial measures.

Advantages and Disadvantages

- **Advantages**
 - No major sampling equipment is necessary to sample for *Legionella* species.
 - Culturable samples allow for serotyping of *Legionella* isolates, which can aid in investigations.
- **Disadvantages**
 - Culturable samples require up to two weeks of incubation to grow and isolate some *Legionella* species.

Equipment

- Clean collection bottles with neutralizer (e.g. thiosulfate) for halogenated water. For routine monitoring 250 ml sample size is sufficient; for recovery of isolates for case investigations multiple samples per outlet or larger sample volumes (1 liter) are recommended.
- Non-cotton tip sterile swab.

Sampling Protocols

- *Legionella* do not survive in dry environments—*Legionella* species require moist environments, so samples should not be collected from sites that demonstrate periodic drying. This is very important when considering where to sample. Sampling for *Legionella* species typically involves collecting water samples and swabs from potential sources. Collection sites range from taps and faucets to water storage reservoirs. Ideally, samples should be taken from a water source or other moist environment. Please remember that it is important not to flush water outlets before taking a sample for *Legionella* analysis because the end section of the water system may be a contaminated site.
- Common locations where *Legionella* can be found include cooling towers, evaporative condensers, fluid coolers that use evaporation to dissipate heat and, domestic hot water systems with water heaters that operate below 60°C (140°F) and deliver water to taps below 50°C (122°F).
- For potable water collect 250 ml of water for routine monitoring and if possible larger volumes or several samples for isolate recovery in case investigations. For non-potable water, a minimum of 100 ml is appropriate.
- Data collected from swab samples are qualitative if no area is given, and quantitative if an area is given. Air sampling is not often conducted since it generally results in a low recovery of *Legionella* species from the environment.

Shipping

- Samples must be shipped to the Legionella testing laboratory for overnight delivery as it is recommended to begin analysis within 24 hours from sampling. Shipping temperatures should be kept between 2°C and 18°C. During hot weather it is recommended to add cold packs or ice in a cooler containing the sample containers.

References

- CDC: [Sampling Procedure and Potential Sampling Sites](#)