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Water Sample Collection and Handling Information

Water Microbiology Department

The purpose of this information sheet is to provide clear instructions to our clients outlining the correct method for sampling and storing water samples for microbiological testing.

It is important that this information is reviewed carefully **prior to** sampling; this will ensure that final test results are valid within the limits of the analysis.

***Sample Holding/Travel Time**

Samples must be shipped to IG MicroMed's laboratory as soon as possible. For water samples, the time from sample collection to initiation of analysis should be no longer than 24 hours. **If time exceeds 30 hours, results for total and faecal coliform analyses are invalid due to bacterial stress and die-off.**

Sample Containers

**IG MicroMed can supply prepared sterilized sampling containers to clients on request.*

Water samples for microbiological examination should be collected in sterilizable, non-reactive, glass (borosilicate) or plastic bottles. Pre-sterilized plastic bags with or without dechlorinating agent, available commercially, may be used. (*Plastic bottles reduce the possibility of breakage during sample transit.)

Bottles should be carefully washed and rinsed, with a final distilled or deionized water rinse.

After washing, dechlorinating agent is added (if required) and containers are sterilized using an autoclave at 121°C for at least 15 minutes.

Dechlorinating Agent

Water containing **residual chlorine disinfectant** should be sampled in a bottle containing dechlorinating agent (sodium thiosulphate). Sodium thiosulphate neutralizes the chlorine, thus preventing further bactericidal effects on organisms in the water during transit. (ie. results of analysis will be representative of sample at time of sampling.)

Add 0.2mL of a 3% solution of sodium thiosulphate, Na₂S₂O₃, per 200mL sample.

Sodium thiosulphate 'pills' are available commercially and can be used in place of the solution.

Sampling Procedures

Potable Water Samples taken from tap

1. Taps used for sampling must be free of aerators, strainers, hose attachments, mixing type faucets and purification devices. Avoid leaky taps.
2. Always take sample from **COLD** water tap.
3. Flush tap by running water (to waste) for 2-3 minutes; this will allow for adequate flushing of the pipe between water main and tap.
4. If tap appears to be dirty, clean with a sodium hypochlorite solution , then allow water to run for an additional 2 to 3 minutes to rinse.

Aseptic Sampling Procedure

1. Wash hands prior to sampling.
2. Remove lid of sample container with one hand. While holding lid with one hand, fill bottle with other hand.

***Do not adjust water line or water flow rate before taking sample.**

*** Do not rinse bottle prior to sampling.**

***Be careful not to touch sides or inside lid of bottle to anything. These measures will prevent sample from becoming contaminated.**
3. Do not overfill sample container. Make sure there is approximately 1 inch of air space at top of container to allow for adequate shaking prior to analysis.
4. Immediately replace lid tightly.
5. If there is any question as to whether or not a sample has become contaminated, discard and resample.
6. Samples should be placed on ice/ice packs during transit to laboratory to maintain temperature below 10°C.

Water samples taken from creeks, rivers, and open water

1. Using aseptic sampling technique (as above), remove cap from sample container using one hand. Hold container at the base with other hand.
2. Plunge container into water (lip of bottle first) until container is approximately 1 foot below surface of water.
3. Turn open end of bottle into the direction of current and allow container to fill. If there is no current, (as in the case of a lake or reservoir) create one by slowly moving bottle in a direction away from hand.

4. Remove container from water. If bottle is overfilled, pour out a small amount leaving at least one inch of air space at top of bottle to allow for adequate mixing.

*It is acceptable to pour water from a sampling container in this instance as sodium thiosulphate neutralizing reagent is not required.

5. Immediately replace lid tightly.
6. Samples should be placed on ice/ice packs during transit to laboratory to maintain temperature below 10°C.

*If there is any question as to whether or not a sample has become contaminated, discard and resample.

Volume of Sample Required

- 100mL of sample is required for total coliform analysis, therefore, sample bottle should contain a minimum of 125mL.
- 100mL of sample is required for faecal coliform analysis therefore, sample bottle should contain a minimum of 125mL.
- If both total and faecal coliform analysis is required, sample bottle should contain a minimum of 225mL.
- HPC analysis requires only a few milliliters of sample. There should be sufficient sample remaining after total and faecal coliform analysis for this test.

Duplicate Samples

A vital part of IG MicroMed's Quality Control program is to perform 10% of all analytical tests **in duplicate** to test the quality control of our procedures, reagents and technique.

Thus, clients are asked to submit approximately 10% of their samples in larger containers to allow for replicate testing. (At least double the normal sample volume is required.)

Alternatively, some of these duplicate samples can be taken from the same sample location, **but in two separate sample containers**. Both bottles should be labelled with the same sample identification, but can be distinguished by adding '-1' and '-2' after the sample number on the two bottles.

Labelling of Sample Container

Prior to sampling, label sample containers with the following information:

- a. Sample identification (full description of sample source can be written on sample field sheet to accompany samples.)
- b. Date of sampling
- c. Time of sampling

Water Sample Field Sheet

This sheet must be filled out using indelible ink at the same time as samples are being taken. It should contain the following information:

- a. Name of Company/Organization
- b. Type of water samples (eg. potable, raw, well water; repeat sample, etc)
- c. Date of sampling
- d. Sample identification
- e. Description of sample source/location.
- f. Analysis required
- g. Time of sampling
- h. Disinfection residual prior to taking sample. (If applicable)
- i. Sampler identification/signature.