

Breakfast Webinar - Sampling



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Sampling – Taking the Right Sample for the Right Result



Microbiological
Sample Bottle

Taking Samples is the physical collection of samples into suitable containers and their transport to the laboratory for analysis.

Taking good samples depends not only on good technique by the sampler, but also on a good sampling plan.

This is because a sample is a snapshot of the conditions in the system at the sampling point at the time the sample was taken. Without the wider sampling plan to put that into context, some of the value of the sample can be lost.

A good sampling plan takes into account what the end goal of taking the samples is and makes this as easy, quick and cost efficient as possible.



Chemical Sample Bottle

Where standards or guidelines (e.g. HSG274, HTM04-01 Part B or BS8552:2012) exist for a specific type of sampling, and they give instructions, these should be followed as far as is practical.

In any case the same questions need to be answered by the sampling plan for all types of sampling:

- How many samples need to be taken to be confident the results are representative?
- Which parameters need to be tested?
- Do all parameters need to be tested for all samples?
- How many sample bottles of each type are needed?
- How will the samples be transported on-site and to the laboratory?
- How many samplers and how long will they be needed for?
- How often should the sampling be carried out?



General Organics
Sample Bottle

Most of the questions that need to be answered can be addressed by carrying out a survey of the site to establish the nature and extent of the system(s) requiring sampling.

This should allow:

- Optimal points to take samples from to be selected
- Hazards likely to be encountered during sampling to be identified and steps taken to mitigate them.
- Decisions to be made about the numbers and frequency of taking samples.
- Logistic and transportation arrangements to be made.

Taking the Samples



To flush or not to flush:

- If the sample is taken without flushing, the sample point, the sample will represent conditions with water standing in the pipe. This can be useful for investigating conditions in the system locally to the sample point.
- If the sample is taken following flushing the sample point the sample will be more representative of the conditions of water flowing through the system. This will give information about the water from the system more generally.



Dissolved
Oxygen Bottle

Standard sample bottles and sample taking techniques are suitable for most analysis.

If more specialised analysis is needed (parameters which need fixing on site, organics, volatile organics or light sensitive parameters) call Latis Scientific ahead of time to get advice on the best way to take and send the sample as well as getting special bottles sent if required.

There may need to be modifications to the usual sample collection techniques to ensure that the best sample is obtained for the analysis required.

Our new updated bottle guide is being sent to all our clients this week and this has up to date information and contact details to order bottles.

Difficult to take samples

Sample points which are difficult or awkward to access can need special techniques and specialised equipment to get the sample.

Sterile single use (or re-sterisable and re-usable dippers) can help get samples from tanks, inspection pits etc.

Using a smaller sample container or even a funnel and a hose can be necessary to enable sample collection from the hardest to reach sample points, although these approaches are less helpful when sample sterility is critical.

A set of screwdrivers, an adjustable spanner and pipe-grips are invaluable. Additional tools like a 4-way and a binder may also be worth carrying. Heavy duty gloves and disposable latex gloves are also worth bringing.

Emergency or Improvised sampling



It is unfortunate that sometimes the reality encountered on-site doesn't match what is planned for and there isn't always the time to go and get what turns out to be needed. In an emergency there are some possibilities whenever there is a supermarket, petrol station or convenience store nearby.

- Bottled water bottles can be used as sample bottles.
- Glass mineral water bottles can be used for sampling organics – take care to fill to the brim with no headspace.
- Antiseptic (alcohol based) wipes can be used to sanitise sampling points.
- Tin-foil around the outside of a bottle can make it light-tight if required.

Record Keeping and Paperwork

The requirements for record-keeping and sampling paperwork are that:

- Each sample is identifiable to the laboratory in terms of where it was taken from and what tests it requires.
- To ensure that analysis starts within the correct holding times, date and time of sampling is required for each sample.
- For routine sampling for standard suites the above is enough and if you have specific suites we can make you sampling paperwork with those on it as tick-boxes.
- For investigations and other non-routine work the more detail included the better: lists of analysis required, descriptions of where the sample was taken from, details from the site, photographs of the sampling point and surrounding areas (if required).

Sending the Samples to The Laboratory

ISO5667-3 (2012) states that samples should in general be transported and stored at 2-8°C between when sampling is finished and when they reach the laboratory.

The exception to this is samples for Legionella analysis which should be transported at ambient temperature to prevent any Legionella bacteria present becoming dormant and unculturable.

There are some samples (e.g. from domestic hot water systems or LTHW systems) which may not reach 2-8°C before they reach the laboratory if they are sampled close by and transported to the laboratory rapidly.

Any Questions?

