



Grab Sampling vs. Online Analyzers

Which is Right for You?

Your decision whether to utilize grab sampling methods or to construct an analyzer shelter for real-time monitoring may not be straightforward. Your plant is unique, and there are many conditions to consider.

Use the checklist below to start determining which sampling technology could make the most sense for you.

Condition	Grab Sampling	Online Analyzer	Analysis
 Plant floor space is limited.	✓		Online analyzers are sensitive and must be housed in an appropriate shelter where ambient environmental conditions are tightly controlled. That shelter requires significant real estate; if you do not have it, grab sampling panels can be installed in smaller spaces.
 Budget is limited.	✓		Online analyzers can represent a significantly larger investment than grab sampling panels. In addition to construction of the shelter itself, online analyzers require sophisticated sampling condition systems to prepare the sample for analysis. This investment may be merited based on additional conditions.
 Process involves hazardous materials and human exposure should be limited.		✓	Sample collection from a panel involves an operator manually collecting media in a bottle or cylinder. While periodic grab sampling will still be required to validate an online analyzer's results, an analyzer reduces the need for regular contact.
 Fluid system is large, and samples must be taken from multiple points.	✓		Grab sampling panels can be installed directly onto the process line where a sample must be taken. Online analyzers require routing tubing or piping from the process line to where the analyzer is located. If your applications require samples be taken from points that are located far distances apart, try installing grab sampling panels at each point rather than routing long lengths of tubing to an analyzer.
 Sample purity is a high priority.	✓	✓	Contamination risks are inherent to each method but take different forms. If sampling several different processes, grab sample cylinders must be thoroughly cleaned to prevent cross-contamination. Meanwhile, if an online analyzer is analyzing two different process streams, a stream selection device must be properly incorporated to avoid the same problem. Good system design and adherence to best practices can help reduce contamination potential in both applications.
 Time delay must be kept to a minimum.		✓	One of an online analyzer's biggest advantages is its ability to analyze sample conditions in real time—often within under a minute from being taken from the main process. This is advantageous for delicate system media that may quickly change phase or otherwise become compromised after being drawn from the process.
 Process rate of change is very slow.	✓		In some plants, it is acceptable for a long period of time to pass between when a sample is drawn and when it is tested in a lab due to a slow rate of change in process fluid conditions. Grab sampling can be a strong option in these scenarios compared to more expensive, complex analyzer systems.
 Maintaining sample temperature is a high priority.		✓	If it is essential to keep your samples as close to the process temperature as possible, an online analyzer provides significant advantages. Tubing that routes the sample to the analyzer can be heat traced to effectively maintain sample temperature. No comparable method is available to maintain sample temperature inside cylinders.
 Field atmospheric conditions are variable.	✓		If your fluid system is operating in an environment where atmospheric conditions change significantly and frequently, a few things should be considered. Grab sampling can be a convenient option here, allowing samples to be analyzed in a carefully controlled laboratory environment. Comparatively, while an analyzer shelter will require an HVAC system, it will save technicians the trouble of obtaining samples in rain, snow, intense heat, or other undesirable conditions.
 The process being sampled has a heavy particulate load.	✓		Online analyzers require filtration as part of their conditioning systems to avoid clogging and ensure accuracy of results. If your process is especially dirty, maintaining the proper filtration levels may become challenging. If this is the case, grab sampling may be the better option.

These are just a few operating conditions that could influence whether grab sampling or online analysis is the best fit for your facility. Interested in further working through the decision process? **Start a conversation with one of our sampling specialists today.**