

Environmental analysis

[Environment](#), [Nature](#)



The water sampling is the preparation stage before instrumental analysis. Water is available in a variety in a different types or classification, including surface water, ground water and spring water, waste water, saline water, estuarine water and brines, and others. It may appear that water is homogenous, but in fact, in most cases, it is not. Spatial and temporal variation in water makes it heterogeneous; making it often difficult to obtain a representative sample. For an example spatial variation can occur within a lake due to changes in flow, differences in chemical composition as well as temperature variation. In addition, temporal variation can occur due to heavy precipitation as well as seasonal changes resulting in low lake water level.

Water samples are collected using the spring loaded water sampling device. It is essentially an open tube with a closure mechanism at either end; the tube is made of either stainless steel or PVC. Between 1 and 30 L of sample can be collected. The sampling device is lowered in to water to desired depth using a distance calibrated line. Then, both ends of the device are mechanically, and remotely, opened for a short time. After closing both ends the sample is brought back to the surface and the sample transferred into a suitable container. Other than that, there are also many sampling systems for examples like manual sampling system, system for sampling the benthic boundary layer at different depths and extraction techniques. The manual sampling system is including the simple sampler for shallow water, sampler for large quantities in shallow water, simple sampler for deepwater, deepwater sampler with no adding air to sample, deepwater sampler for trace element with allowing air to mix with the sample; whereas for the

benthic boundary layer sampling method consists of automatic sampling system, sampling average concentration, sampling average concentration, event-controlled sampling of industrial short-term contamination and rapid underway monitoring. For extraction techniques, the most common technique is liquid-liquid extraction.