Sampling of Liquids

Liquids are of two types homogenous and heterogeneous. Sampling techniques for each will differ.

Homogenous liquids exist in two forms viz; static and flowing.

A sample thief is used to sample liquid from its static form. It enables collection of liquid from varying depths.

A sample thief consists of a glass bottle with two holed stopper. Through one hole a small piece of glass tubing is introduced and through the other hole a long tube is fitted with a stop cock at one end. The sample thief is inserted in the liquid with the stop cock closed, and is opened when the desired depth is reached. This process continues till enough of sample is collected. The stop cock is closed before removing the sample thief from the liquid.

For sampling of flowing liquids a multiple tube sampler is used.

This sampler contains tubes of varying length terminating into one single long tube. The device looks similar to a human hand. The tube is inserted into the stream at the required position. Due to the unequal length f the tubes sample is drawn from different positions along the axis. Since these tubes of varying length terminated in to one tube the sample gets mixed. Thus a composite sample without any bias is obtained.

Sampling of volatile liquids:

Volatile liquids are corrosive toxic and flammable thus one must take special precautions and safety measures.

The liquids is heated slightly, the vapour molecules enter the head space, this can be sampled by static head space sampling or by dynamic head space sampling.

In case of static headspace sampling the sample is withdrawn via a syringe, where as in dynamic headspace sampling the vapors are directed into a trap.

Heterogeneous liquids:

Immiscible liquids separate into layers these individual layers are homogeneous and thus sample thief can be used for sampling.

Emulsions or unstable suspensions are mixed thoroughly and filtered the solid and liquid phases are weighed and sampled individually.

Semisolidified liquids are heated till the solid dissolves in the liquid or melts into a liquid. The sampling techniques used are the same as emulsions and unstable suspensions.