

Section-D

❏ Sampling:-

The primary objective of a sampling program is to collect a small portion of a material so that analyses can be made which will accurately represent the entire body of the material.

Proper sampling & techniques preservation are important in order to maintain the integrity of the sample.

Types:-

1) Grab Sampling:-

It is just what it sounds like, all of the test material is collected at one time.

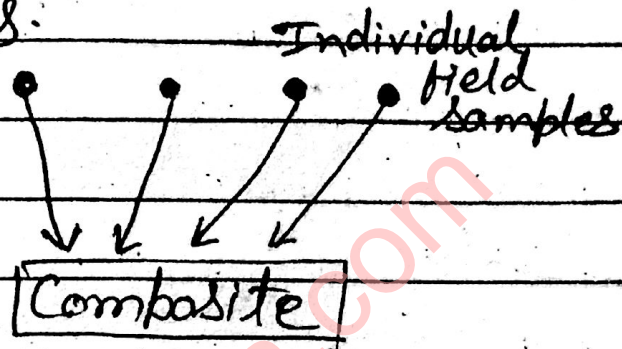
A grab sample is one discrete sample where all of the material is collected at once and can only represent the conditions at a particular time.

It represents snapshot in both space and time of a sampling area.

It can be taken manually by using a pump or scoop or by dipping the container directly into the water to be sampled.

2) Composite Sampling:-

It consists of a collection of numerous individual discrete samples taken at regular intervals over a period of time, usually 24 hours.



It can substantially reduce analytical costs.

A Composite sample is composed of one of the following three:

- (a) Several grab samples, mixed together from various points in a waste stream
- (b) Grab samples of the same volume, taken from one source over a specified period at regulated times.
- (c) Grab samples taken from one source over a specified period at irregular intervals in irregular volume that proportion the flow.

Method:- Steps

- 1) Collect individual portion in a wide-mouth bottle every hour and mix it at the end of the sampling period or combine in a single bottle as collected.
- 2) If preservatives are used, add them to all the sample bottles initially so that all portions of the composite are preserved as soon as collected.
- 3) A better way to collect composite samples is by using an automatic sampler.
- 4) The automatic sampler eliminates many of the errors associated with manual collection.

Advantages:

- (1) more consistent sampling
- (2) less sample handling
- (3) the ability to collect samples in various models

Disadvantages:

- (1) Increased maintenance
- (2) the possibility of lines or probes becoming clogged or frozen and possible
- (3) sample contamination.

Suitability:-

- Grab sampling allows the analysis of specific types of unstable parameters.
- A grab sample may also be necessary if there is an intermittent discharge, as in industrial monitoring situations.
- Composite sampling allows the analysis of the most widely used indicators of treatment plant performance.

Various techniques:-

- The techniques for collecting samples are as varied as their sample locations.
- In general, the samples should be collected in an accessible location in an area of high turbulence to insure good mixing.
- The sampling site should be kept constant so that results from repeated testings can be compared.
- If possible, collect the sample in the center of the flow, about halfway from the bottom in order to avoid the debris.
- When sampling manually with bottle, place the mouth of the container below the liquid.

surface and facing the flow, keeping one's hand ~~from~~^{for} blocking the mouth of the bottle.

- Collect enough sample to allow sufficient volume for analysis and for any duplicate testing.
- Some analyses require the containers to be completely full with no air trapped in them.