

Sampling

Method used to obtain the homogenized sample for chemical analysis is called "Sampling".

Types of Samples :

- i- Grab Sampling
- ii- Average or Composite Sample
- iii- Gross Sample
- iv- Lab Sample → Aliquots (determination of)
 Portion of the ^{lab} sample use for the measurement of 1 exp.
 Sample by hard water

Grab Sample

is a type of sample which is collected from one location of lot at once. it is generally not preferred.

Average or Composite Sample

it is the sample obtained from different locations and different times. The Gross Sample is the homogeneous mixture of whole the lot and it represents

The average composition of lot.

Gross Sample

is the representative of bulk and is obtained is relatively large amount

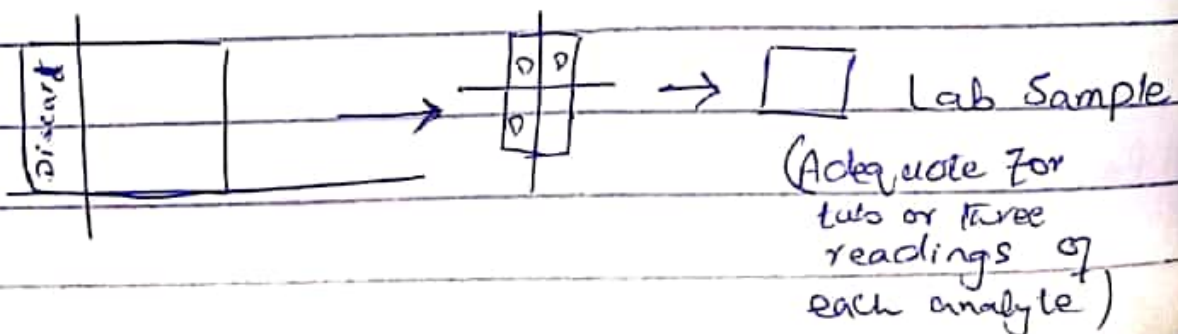
Lab Sample

is the smaller fraction of the Gross Sample at which experiments have to be performed. it is obtained from Gross sample by using different methods

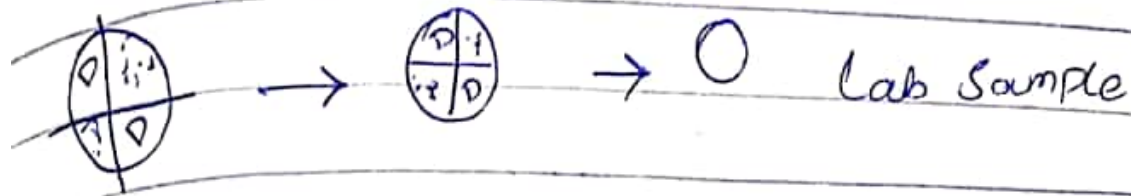
i - long pile and Shoveling method

ii - Circular and quarters method

i - long pile & Shoveling method



ii- Circular and quarters Method



i- Gaseous / Gas Sample

ii- liquid Sample

iii- solid Sample

i- Syringes, balloons, Plastic or glass tubes

* Generally environmental analysis.

* Storage of sample depends upon the nature of analyte.

* Gas scrubbing → is the method of extracting the analyte from the gaseous sample by passing it with through the liquid in which the analyte is soluble.

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AnalyticalLiquid Sample

Sample Collection of liquid depends upon the type of analysis, liquid sample may be collected in homogenized form by using the stirring apparatus or separate layers of liquids can be analyzed by collecting them through dropper or heater. Two liquids which are immiscible to each other can be made homogenized by the addition of emulsifiers in the form of emulsions. Solid particles suspended on the surface of liquid can be separated by filtration or decantation but if the solid particles are also under the analysis then these can be mixed by stirring or centrifuge machine.

Solid Sample

- ⇒ (generally used for the form of powder)
- ⇒ (Convert grinding into powder)
- ⇒ Liquid nitrogen temp -196°C , brittle in nature.

i- Grinding by using

* Stable grinders depending on the nature

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of Solids.

ii- For Polymers

* Coffee grinders along with the addition of liq nitrogen (-196°C) to make them brittle in nature.

Sample Storage

→ Composition Sample Storage

Main step in the analysis is sample storage which is required to avoid the change in composition of analyte or sample method for storage & apparatus depends upon the type of sample. biological

Biological Sample

Biological sample are stored in

* Air tight jars (avoid decomposition)

* Clinical samples such as blood

→ Anticoagulants in air tight bottles

* liq sample for metal analysis → stored by addition of concentrated nitric acid in the sample

A food samples → stores after purging of noble gases/nitrogen.

* River water sample → stored constant stirring.

The apparatus in which sample is stored must be sterilized and cleaned before storage. For the storage of organic sample in plastic bottles it must be washed with organic solvents and dried in oven to avoid the leaching of monomers. S_1 metals used as a catalyst in polymerization of polymers, for the storage of metal ions in glass containers, must be washed with concentrated nitric acid HNO_3 & rinsed with deionized H_2O .

Sample must not be stored for long time period because it may be reduced,

oxidized, or involve in photo catalytic reactions e.g. Silver salts are decomposed in presence of sunlight & precipitated out. Therefore such soln are stored in dark bottles to avoid interaction with light.