



Collection of Samples for Chemical Analysis

Sampling Protocols



- Will vary based on the reasons for sampling
- Consult with your analytical lab BEFORE sampling
- Follow regulatory requirements to a tee

Types of Samples



- **Grab Samples**
- **Composite Samples**
- **Random Samples**
- **Targeted Samples**
- **Market Basket Samples**
- **Partial vs. Whole sample**

Sampling Considerations



- **Containers**
- **Sample sensitivity to ambient conditions (light, heat, air)**
- **Preservatives**
- **Holding Times**

Water Sample Containers



Containers



- Flexible
- Rigid
- Plastic
- Glass
- Native Packaging (unopened if possible)

Preservatives



- **Chemical Preservatives used primarily with water sampling**
- **Stabilize the target analyte by decreasing chemical or biological degradation**
- **May render sample unsuitable for other analytes**
- **Refrigeration vs Freezing**
- **Cooling vs. keeping cool**

Example preservatives



- **Sodium thiosulphate**
 - ◆ Dechlorinator
- **Nitric acid**
 - ◆ Stabilizer for metals in water
- **Sulphuric Acid**
 - ◆ Stabilizer for ammonia, oil and grease

Example Preservatives



Holding Time



- **Clock starts at sampling**
- **Holding time is under specified conditions**
- **Usually taken to be the time when the variability due to degradation becomes significant compared to the expected variability of analysis**

Example Preservatives and HOLD Times



■ Volatiles in water

- ◆ 3 X 40 ml septum vial (no headspace)
- ◆ Sodium bisulphate
- ◆ 14 days

■ BOD in wastewater

- ◆ 1 litre
- ◆ 48 hours
- ◆ Keep at 4 deg C.

Quantifying Variability



- If we can't control it, we must try to measure it
- Often as simple as noting changes in case they impact data
- Field duplicates
- Understanding “Measurement Uncertainty” in assessing your data

Questions?



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