

Measuring Density

Sensitivity: Measure of error from various measurements of same observation using the same instrument of measure.

Example: Buret readings 5.25 mL 5.28 mL 5.23 mL

sensitivity marked in buret ± 0.01 mL

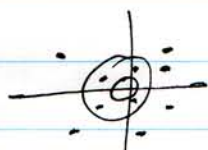
Depends on instrument of measure.

Precision: Describes the reproducibility of a result.

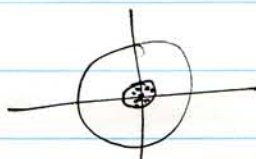
Accuracy: Describes how close a measured value is to the "true" value.



good precision
bad accuracy



bad precision
bad accuracy



good precision
good accuracy

$$\% \text{ error} = \frac{|\text{experimental value} - \text{reference value}|}{\text{reference value}} * 100$$

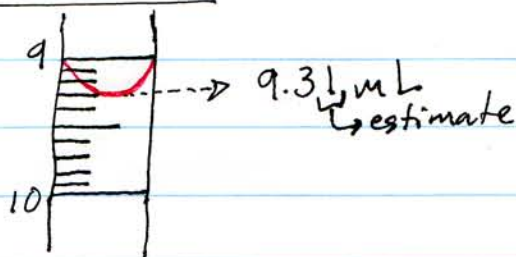
Extensive Properties

It's the same as additive, e.g. Mass, Volume

Intensive Properties:

Non-Additive, for example, density

BURET READING :

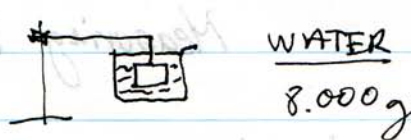
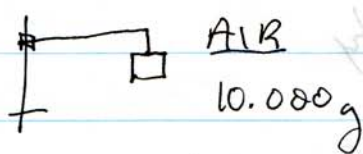


REMEMBER

- Always use sf. & write units.
- Read mass in electronic balance.

3. Groups

- A. Dimensions
- B. Displacement
- C. Archimedes (Demonstration)



$$10.000 \text{ g} - 8.000 \text{ g} = 2.000 \text{ g} \text{ displaced water}$$

$$\frac{2.000 \text{ g}}{\text{density of } H_2O \text{ at } T_{lab}} = \text{Volume of object!}$$

* Write Unknown #

* Do not splash & clean with paper towels when wet



$$\% \text{ Error} = \frac{|\text{Experimental value} - \text{reference value}|}{\text{reference value}} \times 100$$

Intensive properties

It's the same as additive, e.g. Mass, Volume

Intensive properties

Non-Additive, for example, density

REMEMBER

- Always use SI units
- Read mass in grams

3. Groups

A. Dimensions

B. Displacement

C. Archimedes (buoyancy)

→ 0.3 mL estimate

