

ADVANCED PLACEMENT CHEMISTRY
CHAPTER 1
CHEMICAL FOUNDATIONS

Review: scientific method
SI system
-know prefixes in blue on page 10
mass vs. weight

Uncertainty- measurements should include all certain digits plus the first uncertain digit.
Ex. reading thermometer, buret, balance, etc.

Significant figures- (review by use of examples)

4.0023
4.00
0.04003
0.04
0.040

Review: precision vs. accuracy
significant figures in calculations
Ex. $3.0 \times 6.00 = 18$.
 $3.0 + 6.00 = 9.0$
exact numbers

Show use of decimal point to show limit of significant figures. Ex. 600. or 6.00×10^2

Dimensional analysis-

-conversions are in Appendix 6, pg. A26

Temperature conversions

$^{\circ}\text{C} \rightarrow \text{K}$ add 273.15
 $\text{K} \rightarrow ^{\circ}\text{C}$ subtract 273.15

Density-

- Units are g/cm^3 for solids or liquids and g/L for gases.
- The density of a substance is a physical property of the substance and can be used to identify it.

Review classifications of matter, such as elements, compounds and types of mixtures.

Physical, chemical, and ambiguous changes

- In a physical change, the chemical formula does not change. All phase changes are physical changes.
- In a chemical change, one or more new substances are formed.
- Sometimes the determination as to whether a change is physical or chemical is not so simple and the change is termed “ambiguous”. An example could be an ionic compound dissolving in water. Weak chemical bonds form between the water molecules and the dissolved ions.

Separation of mixtures

Distillation- separation based on boiling point differences of the components

Filtration-separation based on particle size

Chromatography- a procedure that separates a mixture into its component parts based on the component's attraction for the mobile and stationary phases. The distance that the component travels is compared to the distance that the mobile (solvent) phase travels on the stationary phase.

Types of chromatography:

Paper

Gas

Thin-layer

Liquid