Names: _____ **20 Pts.**

Chemistry Lab: Determining the Atomic Mass of an Element

I. Prelab:

The subscripts of a chemical formula indicate the relative number of atoms or moles. This can be described also as a ratio of the atoms in a compound. For example in water; H_2O there are always 2 atoms of hydrogen for each 1 atom of oxygen. Subscripts represent numbers or moles.

Sample problem: In your analysis of silver oxide; Ag_2O it is found that there were 5.0×10^{20} atoms of oxygen in a sample of siver oxide, how many atoms of silver are also present? *Answer: 2 times more or 1×10^{21} atoms Ag*

II. Analysis:

Data:

a.) Mass of crucible and cover: _____ g

b.) Mass of crucible cover and Ag_2O _____ g

c.) Mass of crucible, cover and Ag _____ g

Calculations

a.) Find the mass of silver, Ag.

b.) Calculate the mass of oxygen, O.

c.) Determine the moles of oxygen

d.) Find the moles of silver (see pre-lab discussion)

e.) Calculate the atomic mass of Ag

f.) What is your percent error?

g.) Use <u>your lab data</u> to calculate the percent composition for both elements in the compound.

III. Conclusions

a.) Define the ***mole***. Write in complete statements.

b.) The subscripts in a formula represent (moles / mass).

c.) Which compound has the greatest percentage of oxygen by mass? (CO, CO_2, Na_2CO_3).

d.) It was determined that 0.0226 moles of a compound had a mass of 2.61 grams. What is its molar mass?

e.) Convert 1.00 grams of Ag_2O to formula units.

f.) Based on your calculation of the percentage of silver in siler oxide what mass of silver oxide is needed to obtain 28.0 grams of silver?

g.) Based on your calculation of the percentage of silver in siler oxide what is the percentage of silver in 25.0 grams of silver oxide?