**Experiment: Empirical Formula of a Compound, Magnesium & Oxygen**

In this experiment, you precisely weigh a sample of magnesium metal, and then heat the sample in air. Magnesium metal reacts with the oxygen (O2) of the air to form magnesium oxide. Mg + O2 →  MgxOy (magnesium oxide)

After the magnesium sample has reacted completely, you determine the mass of magnesium oxide product. From these two masses, you calculate the percentage composition of magnesium oxide, and its empirical formula.

**Calculations**

Suppose the data below were recorded for this experiment (see Page 33, Section I).

|  |  |  |  |
| --- | --- | --- | --- |
|   |  Mass (g) | *Mass of crucible, cover, beaker + product* | Mass (g) |
| *Mass of magnesium* | 0.3397  | *after first heating* | 46.31 |
| *Mass of empty crucible, cover, beaker* | 45.7324  | *after second heating* | 46.29 |
|  |  | *after third heating* | 46.31 |

**Questions**

1. **Calculate the mass of Oxide produced (2 marks)**
2. **Calculate the empirical formula of magnesium oxide**
3. **If 0.6 grams of magnesium had been used instead of the amount listed in the experiment, what mass of oxide would have been produced?**