**Laboratory Report:**

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* Faculty of Science
* Department of Chemistry
* Chem. 241L

**Title: Exp1 Matter and Measurement**

Name: Ibrahim Abou Zahr

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Partner: Riad Yassine

Report

**Purpose/Aim**: To determine the quantity of a matter and the amount atoms found in that object.

**Procedure**:

1st Exp:

1. Put an empty piece of paper on the electronic balance and record the mass.
2. Take Zinc granules with a spoon and place it on the piece of paper.
3. Record the new mass

2nd Exp:

1. Put another empty piece of paper on the electronic balance and measure it.
2. Take NaCl salt with a spoon and place it on the paper.
3. Record the mass.

3rd Exp:

1. Put a new and dry 100ml beaker on the electronic balance and record the mass.
2. Put water in the beaker so that it fills 50ml.
3. Record the mass.
4. Calculate the water’s mass.

**Observation and Data**:

* In the first experiment, we measure the empty piece of paper in which the balance records it at 0.45g. We add a full spoon of Zn on the piece of paper to get a new mass of 8.14g. By subtracting the new mass with the mass of the paper, we record the mass of Zn found which reads 7.69g.
* In Experiment 2, we also measure an empty piece of paper using the balance to get the same mass of 0.45g. However, we instead add a full spoon of NaCl salt on the paper to receive a new mass of 5.08g. By also subtracting the values we get the mass of NaCl which is 4.6g.
* In the 3rd and last experiment, we measure the weight of an empty and dry beaker which is 50.01g in mass. We pour in 50ml of water into the beaker and we measure our new mass which is 98.72g. After that, we subtract the new mass with the mass of the beaker to get the mass of the water which is 48.71g.

**Calculations**:

* To calculate the number of moles and atoms of Zn, we do the following:

nZn = mZn/MZn = 7.69/65.39 = **0.117mol.**

no of atoms Zn = no of moles of Zn \* Na = 0.117mol \* 6.022\*10^23 = **7.04574\*10^22 atoms**

* To calculate the number of moles and atoms of NaCl, we do the following:

nNaCl = m/M = 4.6/58.5 = **0.078 mols**

no of atoms of sodium = nNaCl/1 = nNa/1 = nCl/1 = nNa = 0.078 mols. No of atoms of NaCl = 0.078 \* 6.022\*10^22 = **4.69716\*10^22 atoms.**

* To calculate the number of moles and atoms of H2 and O2, we do the following:

nH2O = mH2O/MH2O = 48.71/18 = 2.70611 mol.

2H2O –> 2H2 + O2 ; so, nH2O/2 = nO2/1 then, nO2 = **1.353055 mol**

nH2 = **2.70611 mol**

no of atoms of H2 = nH2 \* 6.022\*10^23 -> **Y**

no of atoms of H = Y\*2

no of atoms of O2 \* 6.0222\*10^23 -> **X**

no of atoms of O = X\*2

**Conclusion:** By measuring the masses of objects in the lab, we were able to determine the number of moles and atoms of Zn, NaCl and H20.