**Laboratory Report:**

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

**Title: Exp2 Moles and Stoichiometry**

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Date: 30-9-2022

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Report

**Purpose/Aim**: To find out the limiting reactant in a balanced chemical reaction.

**Procedure**:

1. We take 2g of Zn powder and add them into a test tube.
2. We extract 1ml of 1 M HCL and drop it into the test tube.
3. Observe the given results (Evolution of H2 gas.)
4. Calculate the stoichiometric ratio.

**Observation and Data**:

After pouring in the 2g of Zn into the test tube, followed by adding 1ml of HCL, resulted in creating an audible pop sound and the appearance of gas bubbles in the test tube, meaning a chemical reaction took place.

**Calculations:**

nZn = m/M = 2g/65.5 = 0.03 moles (initial)

nReactant = C\*V = 1\*0.01 = 0.01 moles (initial)

Rzn = 0.03/1 = 0.03; RHCL = 0.01/2 = 0.005

Rzn > RHCL, so Zn is in excess and HCL is limiting.

nZn excess = nZn initial – nZn reacted = 0.03 – 0.005 = **0.025**

**To calculate the total quantities of substances present at the end of the reaction:**

According to St ratios: nHCL/2 = nZnCl2 🡪 nZnCl2 **= 0.005 mol**

nH2 = **0.005 mol**

At the end of the reaction; nZn excess + nZnCl2 + nH2 = 0.025 + 0.005 + 0.005 = **0.035 mol 🡪 Total quantity of substances present at the end of the reaction.**

**Conclusion:** By using stoichiometric ratios we were able to find out the limiting reactant that is totally consumed in the balanced chemical reaction.