**NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Time: 30 mins Marks: /20**

**In-Class Assessment**

**Molar Volume of Hydrogen Gas and Percentage Purity of Magnesium Ribbon**

1. Construct a balanced chemical equation showing the nature of all species for the reaction between Magnesium metal and Hydrochloric Acid. (3 marks)
2. Record one safety procedure specific to this experiment. Indicate at which step it should be observed.

(2 marks)

1. A group of Year 11 students carried out the experiment as you did.

This is their results.

|  |  |  |
| --- | --- | --- |
| Mass of Mg Reacted  ( +/- 0.001g ) | Volume of H2 Produced  ( +/- 0.05mL) | Room Temp: **18.5oC**  Atmospheric Pressure:  **99.2 kPa** |
| **0.041** | **40.6** |

1. Compare the conditions for their experiment with STP. (2 marks)
2. How many moles of Magnesium metal have been reacted in this experiment.

(Assume the metal to be 100% Mg) (2 marks)

1. Assuming the metal to be 100% Magnesium, determine **from the above results** the Molar Volume of Hydrogen at 18.5 0C and 99.2 kPa. (2 marks)
2. Another group of Year 11 students carried out the experiment as you did.

This is their results.

|  |  |  |
| --- | --- | --- |
| Mass of Mg Reacted  ( +/- 0.001g ) | Volume of H2 Produced  ( +/- 0.05mL) | Room Temp: **18.5oC**  Atmospheric Pressure:  **99.2 kPa** |
| **0.048** | **42.6** |

1. How many moles of Hydrogen gas have been collected in this experiment.

(Assume the Gas was collected at STP) (2 marks)

1. What mass of magnesium does the amount of gas collected suggest has been reacted?

(2 marks)

1. Determine the Percentage purity of the Magnesium metal used in the experiment.

(2 marks)

1. Two groups of students compared their results. One group (Group A) found their Magnesium to be more than 100% pure and the other (Group B) to be less than 100% pure. Taking into account the assumptions made, experimental conditions and the procedure they followed (identical to yours) - which group do you believe has carried out the experiment more proficiently?

Justify your answer with an explanation. (3 marks)