

## E6-ANALYSIS OF AN ALUMINUM-ZINC ALLOY

DATE\_\_\_\_\_

Name\_\_\_\_\_

### REPORT SHEET

Unknown #\_\_\_\_\_ % Zn\_\_\_\_\_

% Al\_\_\_\_\_

- 1) Upload your excel file separately in canvas and insert it here as well.
- 2) Insert into this report sheet, your prepared data table with all collected data; make sure to include the following:
  - a) Use your calculated  $n(\text{H}_2)$  and the graph to determine the percent Al in the sample.
  - b) Use the equation from problem 3 of the Pre-lab to calculate the percent Al.
- 3) Show a sample calculation for one trial:
- 4) Explain possible causes of any discrepancies between the two answers.

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### Post-Lab Questions

1. What volume (mL) of hydrogen gas, saturated with water vapor, will be obtained from a 0.1138 g sample of alloy which is 73.2% Al? ( $P_{\text{bar}}=754.3$  torr,  $T=21.2^{\circ}\text{C}$ )
2. What volume (in mL) will the dry hydrogen gas from problem 1 occupy at STP?
3. Which of the following alloys can be analyzed by the method of this experiment? Show the balanced chemical equations for the alloys that can be analyzed. Give the reasons why some alloys cannot be analyzed by this method.  
Fe/Ni                      Cu/Sn                      Cu/Ag

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### Pre-Laboratory Assignment

1. Calculate  $n(\text{H}_2)$  obtained from 1.000 gram of Al. Also, calculate  $n(\text{H}_2)$  obtained from 1.000 gram of Zn.
2. Prepare a graph in Excel for a 1.000 gram sample of alloy with  $n(\text{H}_2)$  on the vertical axis and percent Al on the horizontal axis. The graph will be linear. Plot four points, one where the percent Al is 100 (i.e., 1.000 gram of Al) and another point where the percent Al is zero (1.000 gram of zinc). Choose any two other percentages for a **1.000 gram sample**, calculate the moles of hydrogen that will be obtained, and plot the points. **Submit the Excel graph to your instructor before beginning the experiment. Retain a copy of this graph for use in data analysis from your experiment.**
3. Why did we designate that the %Al should be placed on the x-axis? Determine the slope and y-intercept of the line obtained in problem 2 and write the equation of the line, including units.
4. Define alloy.