Identifying an Unknown Metal Carbonate Worksheet

Data Table — Gas Evolution Reaction

	Trial #1	Trial #2
Mass of flask	g	g
Mass of M ₂ CO ₃	g	g
Mass of cylinder and 2 M HCl	g	g
Mass of cylinder empty	g	g
Mass of 2 M HCl	g	g
Mass of beaker + M_2CO_3 sample + 2 M	g	g
Mass of beaker + reacted solution	g	g
Mass of released CO ₂	g	g

Data Table — Titration Analysis

Mass of solid M₂CO₃

___ g

	Blank	Trial #1	Trial #2
Volume of $M_2 CO_3$ solution titrated	0 mL	mL	mL
Final Volume of 0.10 M HCl	mL	mL	mL
Initial Volume of 0.10 M HCl	mL	mL	mL
Volume of 0.10 M HCl added	mL	mL	mL

Calculations and Post-Lab Analysis (Use a separate sheet of paper to answer the following questions.)

- 1. Using the data obtained in Part 1, calculate the number of moles of carbon dioxide, CO₂, produced in the reaction.
- 2. Calculate the molar mass of the unknown Group 1 metal carbonate and identify the metal.
- 3. Calculate the percent error in the experimental determination of the molar mass.
- 4. Using the data obtained in Part 2, calculate the moles of hydrochloric acid used to neutralize the unknown Group 1 metal carbonate dissolved in the 50 mL sample for each trial titration.
- 5. For each trial, calculate the total moles of the unknown Group 1 metal carbonate originally dissolved in the 500 mL of distilled or deionized water.
- 6. Calculate the molar mass of the unknown Group 1 metal carbonate and identify the metal.
- 7. Calculate the percent error in the experimental determination of the molar mass.

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