

Gravimetric Analysis of a Soluble Carbonate

Date: _____

Name: _____

Section: _____

OBJECT:

To determine the molar mass and identity of an unknown metal carbonate using gravimetric analysis.

PROCEDURE:

As in Chemistry 1105 lab manual, pp. _____

OBSERVATIONS:

DATA:

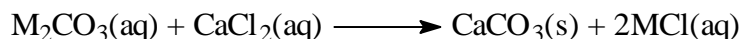
Unknown #: _____

Mass of vial and all M_2CO_3 (g)	
Mass of vial and remaining M_2CO_3 (g)	
Mass of empty vial (g)	

	Run 1	Run 2
Mass of M_2CO_3 (g)		
Mass of empty crucible (g)		
Mass of dried precipitate and crucible (g)		
Mass of precipitate (g)		

CALCULATIONS:

1. Calculate the molar mass of calcium carbonate and, using this mass, the **moles** of calcium carbonate obtained for each trial.
2. From the balanced equation below, determine the moles of unknown metal carbonate obtained for each trial.



3. Knowing the **grams** of unknown metal carbonate used initially, the molar mass (**grams per mole**) can be found. Do this for both runs. Next, calculate the **average** molar mass of your **metal carbonate**. (If the two molar masses do not agree within 10 grams, do not average them; simply report the two values.)
4. As you are told the unknown metal is an **alkali** metal, the formula of the unknown metal carbonate must be M_2CO_3 . Calculate the molar mass of the metal using the molar masses of oxygen and carbon.
5. Suggest the identity of the metal M.

6. Now calculate the % error between the expected molar mass of your metal carbonate and the molar mass of the metal carbonate you obtained experimentally.

RESULTS:

	Run 1	Run 2	Average (or Best Value if One Run Had Known Error)
Calculated molar mass of metal carbonate unknown #: _____			

CONCLUSION:

DISCUSSION:

Give one source of error *beyond your reasonable control* and state what its effect would be on the molar mass you calculate. Make sure the source of error you give is consistent with the direction of error you observed. That is, if your calculated molar mass was too low, give a source of error which would make the calculated molar mass too low.

