Abbreviated Report | Stoichiometric Characterization

Start Assignment

Due Friday by 11:59pm **Points** 15 **Submitting** a file upload
File Types doc, docx, and pdf

The post-lab assignment for this experiment is an abbreviated technical report that includes an *Introduction* section plus the *Core* (*Data and Results*, *Discussion*). First, work up your data using the **data workup template (https://gatech.instructure.com/courses/334258/files/42100997?wrap=1)** **(https://gatech.instructure.com/courses/334258/files/42100997/download?download_frd=1)** for this experiment, a Microsoft Excel spreadsheet that will help you organize your data, calculations, and plots. Then, use the **abbreviated report template (https://gatech.instructure.com/courses/334258/files/42101029?wrap=1)** to complete the report.

All tables, figures, and writing should meet the minimum expectations described in the **Guidelines for Post-lab Assignments (https://gatech.instructure.com/courses/334258/pages/guidelines-for-post-lab-assignments)**.

Introduction

Address the following points to complete the *Introduction* section. Do not include the prompts in your submission; weave your answers together into a coherent narrative.

1. Provide pertinent background theory and other information to help orient the reader to the significance of the data, results, and conclusions.
2. Describe in general terms the methods applied to achieve the technical objectives of the experiment. Include distinct information about the methods applied in Parts A and B.
3. Propose a hypothesis that represents a prediction of the results of the experiment. In particular, indicate a range for the typical composition of sodium percarbonate and propose limits on the mass percentage of sodium chloride in the mixture in Part B.

Core (Data and Results, Discussion)

To complete *Data and Results*, copy and paste required figures from your data workup spreadsheet, replacing the placeholder boxes.

To complete the *Discussion*, address the following items in paragraph form. Do not include the prompts in your submission; weave your answers together into a coherent narrative. Construct equations using the Equation Editor built into Microsoft Word or an **online equation editor (https://csdn.codecogs.com/eqneditor/editor.php)**. If you use an online editor, include equations as images, not text.

1. Include balanced chemical equations (with states of matter) for the important reactions that occurred during this experiment.
2. Using your data, calculate the moles of H_2O_2, moles of Na_2CO_3, and the ratio of the two (*n*) in your sample of sodium percarbonate. Describe your approach using a series of mathematical equations and explanatory text. Consider your audience a future CHEM 1211K student looking to replicate your work.
3. Using your data, calculate the moles, mass, and mass percentage of sodium chloride in your mixture. Describe your approach using a series of mathematical equations and explanatory text. Again, consider your audience a future CHEM 1211K student looking to replicate your work.

Save the report as a PDF file and upload it here to complete this assignment. Do not upload your data workup spreadsheet.

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Criteria	Ratings			Pts
Table 1	**1 pts** **Full Marks** All values are filled in to an appropriate level of precision, including calculated values.		**0 pts** **No Marks**	1 pts
Table 2	**1 pts** **Full Marks** Table includes at least the mass of titrant delivered, mass of mixture titrated, and mass percentage of NaCl in the mixture. All values are reported with appropriate precision and units.		**0 pts** **No Marks** More than 50% of values in the table are lacking units or are not reported to the appropriate precision.	1 pts
Figure 1	**1 pts** **Full Marks** Chart is professional quality and sections for the various elements are clearly labeled. Reported mass percentages reflect other results.		**0 pts** **No Marks** Neither of the two criteria is met.	1 pts
Introduction: Stoichiometry Background	**2 pts** **Full Marks** (1) Stoichiometry is properly defined and (2) the utility of stoichiometry in bridging laboratory measurements and chemical composition is properly explained.	**1 pts** **Partial Credit** One of the two criteria is met.	**0 pts** **No Marks** Neither of the two criteria is met.	2 pts
Introduction: Method for Part A	**1 pts** **Full Marks** The method used in Part A is correctly and completely described; the ultimate result of the method is stated explicitly. (A chemical equation need not appear here, as one should appear in the Discussion).		**0 pts** **No Marks**	1 pts
Introduction: Method for Part B	**1 pts** **Full Marks** The method used in Part B is correctly and completely described; the ultimate result of the method is stated explicitly. (A chemical equation need not appear here, as one should appear in the Discussion).		**0 pts** **No Marks**	1 pts
Introduction: Hypothesis for Part A	**1 pts** **Full Marks** The hypothesis is a reasonable numerical range that reflects the typical composition of solid sodium percarbonate.		**0 pts** **No Marks**	1 pts

Criteria	Ratings			Pts
Introduction: Hypothesis for Part B	**1 pts** **Full Marks** The hypothesis is a reasonable numerical range that reflects simple limits on mass percentages.		**0 pts** **No Marks**	1 pts
Discussion: Balanced Equations	**2 pts** **Full Marks** The Discussion includes correctly formatted and balanced chemical equations with phases for (1) Part A and (2) Part B of the experiment.	**1 pts** **Partial Credit** One of the criteria is met.	**0 pts** **No Marks** Neither criterion is met.	2 pts
Discussion: Calculations for Part A	**2 pts** **Full Marks** (1) An appropriate method is applied to determine the value of n. (2) The explanation is appropriate for the audience and of professional tone and quality.	**1 pts** **Partial Credit** One of the criteria is met.	**0 pts** **No Marks** Neither criterion is met.	2 pts
Discussion: Calculations for Part B	**2 pts** **Full Marks** (1) An appropriate method is applied to determine the mass percentage of sodium chloride. (2) The explanation is appropriate for the audience and of professional tone and quality.	**1 pts** **Partial Credit** One of the criteria is met.	**0 pts** **No Marks** Neither criterion is met.	2 pts
				Total Points: 15