Chem 101 Laboratory Exercise #1 Laboratory Notebook

Measurement of Volumes and Weight: Accuracy and Precision

Using Microsoft Word, students are to write their in-lab notes below while completing the Laboratory exercise. The Laboratory notebook must be uploaded to the CHEM 101 Lab Brightspace site as a readable .pdf by the end of the lab period. Please see page 7 of the 202309 CHEM 101 lab *manual as to all the information required in the in-lab notes. The documentation below must reflect the student's own work without assistance from others.*

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In-lab Notes:

Experimental Procedures:

1. For weighing accurately an approximate 1.5 g of NaCl, I used a weigh boat to take the NaCl and then put that (subtracting the weight of the weigh boat) on a balance. The weight is documented in the Final Documentation.
2. Then I transfered the NaCl to a 50.00 mL volumetric flask from the weigh boat and filled to the mark with distilled water.
3. I took a clean dry 50 mL beaker on a balance, documented its weight (1.1).
4. Then I used a 10.00 mL volumetric pipette and transferred 10.00 mL of the NaCl solution from the volumetric flask to the beaker.
5. The weight of the solution without the beaker can be found in the Final Documentation (1.2).

I re-did the experiment for 4 more times.

Final Measurements:
Weight of the NaCl: **1.543g**.

1.1 Weight of the Beaker is **28.501g**.
1.2 Weight of the Solution-01: **11.166g**.

2.1 Weight of the Beaker is **28.503g**.
2.2 Weight of the Solution-02: **10.156g**.

3.1 Weight of the Beaker is **28.506g**.
3.2 Weight of the Solution-03: **10.183g**.

4.1 Weight of the Beaker is **28.508g**.
4.2 Weight of the Solution-01: **10.151g**.

Abstract:
By measuring the volume and weight of samples the density of a solution of NaCl was determined it to be **1.543**.

Data/Results:

10.00 mL of NaCl Solution	**#1**	**#2**	**#3**
Weight of sample from Volumetric Pipette			
Calculated Density			
Average Calculated Density of NaCl Solution			
%RSD for the density of NaCl Solution			

Algebraic Equations:
Density (g/mL) = weight of NaCl solution /volume of NaCl solution

Discussion:
The density of the prepared NaCl solution was determined to be __ by measuring 3 samples of 10.00mL of the NaCl solution. The %RSD calculated for these measurements was __. The accuracy of the measurement required the use of a pipette and not a cylinder because __.

Conclusions:
The measured density of the NaCl solution using a volumetric pipette is __ with a % relative standard deviation of __.

References:
1. Reimer, M. et al, Laboratory Manual, Chemistry 101, pp. 13-18. (University of Victoria: Victoria, B.C.). Fall 2022.