

The data analysis section contains a table which summarizes the calculations for the lab, the formula used for each calculation, an example of each calculation, and any graphs used to display the lab data.

IV. Data Analysis

Calculations

Table 1. Summary of Hard Water Gravimetric Analysis Calculations

Sample	CaCO ₃ precipitate recovered (g)	Observed Water Hardness (mg/L)	Theoretical Water Hardness (mg/L)	Percent Error (%)
5 – trial 1	0.105	52.5	50.0	-5.00%
5 – trial 2	0.095	47.5	50.0	+5.00%

Use headings to label the calculation.

Observed Water Hardness:

$$\frac{\text{Mass CaCO}_3 \text{ (g)}}{\text{Volume Sample (L)}} \times \frac{1000 \text{ mg}}{1 \text{ g}} \times \frac{1}{100} = \text{observed water hardness (mg/L)}$$

(concentration factor)

Sample 5 – Trial 1

$$\frac{0.105 \text{ g CaCO}_3}{0.020 \text{ L sample}} \times \frac{1000 \text{ mg}}{1 \text{ g}} \times \frac{1}{100} = 52.5 \text{ mg/L}$$

(concentration factor)

First give the formula being used for each calculation and then show one example calculation.

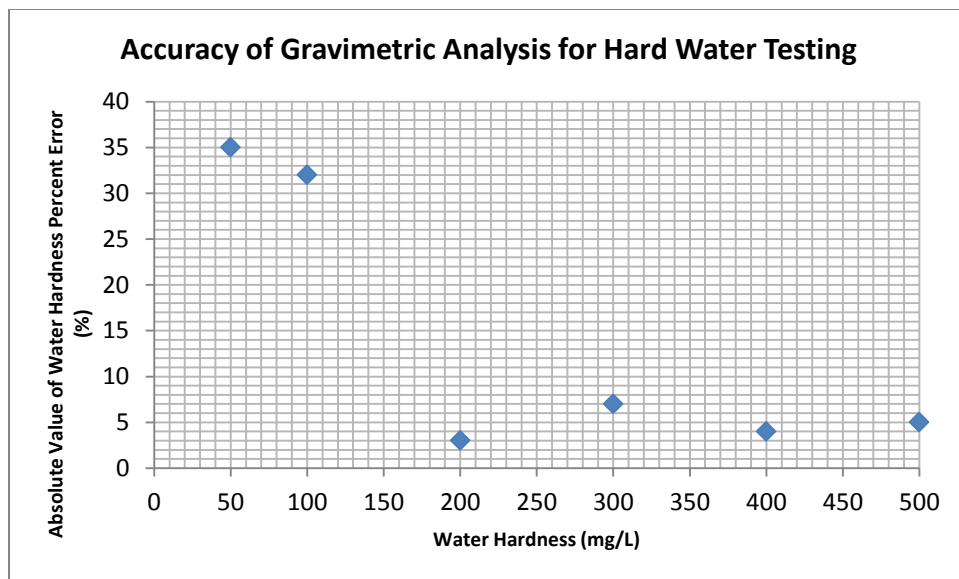
Percent Error:

$$\frac{\text{Theoretical Water Hardness (mg/L)} - \text{Observed Water Hardness (mg/L)}}{\text{Theoretical Water Hardness (mg/L)}} \times 100 = \text{percent error (\%)}$$

Sample 5 – Trial 1

$$\frac{50.0 \text{ mg/L} - 52.5 \text{ mg/L}}{50.0 \text{ mg/L}} \times 100 = -5.00\%$$

Graph



Portion of rubric showing how you will be assessed for this section



I. Data Analysis

0 0.5 1 1.5 2 2.5 3 3.5

<input type="checkbox"/>	Calculations are well organized and easy to read	
<input type="checkbox"/>	Data tables have a descriptive title	
<input type="checkbox"/>	Any equations are written out in generic form prior to use	
<input type="checkbox"/>	Show how values are substituted into equations	
<input type="checkbox"/>	All calculations are shown	
<input type="checkbox"/>	Units are specified	
<input type="checkbox"/>	Significant figures are correct	

0 0.5 1 1.5 2 2.5

<input type="checkbox"/>	Graph has a descriptive title	
<input type="checkbox"/>	Independent and dependent variables are on correct axis	
<input type="checkbox"/>	Each axis has a label with units	
<input type="checkbox"/>	Graph data is reflected in data table in data section	
<input type="checkbox"/>	Graph scale effectively displays data (and precision is reflected – AP only)	