

Do not write your name on IA.

Chemistry IA: Topic

1.0: Introduction and Background Information

You should write details of all the necessary aspects related to your IA in different subheads.

1.1: Rationale and Aim

Aim:

1.2: Titration

1.3: Choice of your materials or quantities

2.0: Research Question:

3.0: Hypothesis

4.0: Variables (you need to give justification of variables)

4.1: Independent Variable

4.2: Dependent Variable

4.3: Controlled Variables

TABLE 1: CONTROLLED VARIABLES		
Variable	Why is it important to control?	How will you control it?

5.0: Measurement Apparatus and Materials

5.1: Measurement Apparatus you should write the number of apparatus needed along with the uncertainty.

1) Burette - 1 ($\pm 0.05 \text{ cm}^3$)

2)

5.2: Materials

- 1) Burette stand - 1

6.0: Methodology¹ ("Write a statement about the experiment method ")

6.1: Preparation of Solutions(detailed step wise step)

- 1) Place a

6.2: Main Method of experiment for example Titration

- 2) Measure and add 50 cm³ of
- 3) Repeat steps x to y four more times for a total of five trials.
- 4) Repeat steps x to y with varied

7.0: Safety, Ethical, and Environmental Considerations

7.1: Safety

Handling of apparatus,

Chemicals

7.2: Ethical and Environmental Considerations

8.0: Investigation and Results

8.1: Qualitative Observations

You can give your experimental setup picture here.

8.2: Raw Data

TABLE 2: RAW DATA										
Temperature ($\pm 0.5^{\circ}\text{C}$)	Volume of 0.05 mol dm ⁻³ CaCl ₂ needed to reach endpoint ($\pm 0.05\text{ cm}^3$)									
	Trial 1		Trial 2		Trial 3		Trial 4		Trial 5	
	INITIAL L	FINAL	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL

8.3: Processed Data

TABLE 3: PROCESSED DATA							
Temperature ($\pm 0.5^{\circ}\text{C}$)	Change in volume of 0.05 mol dm ⁻³ CaCl ₂ ($\pm 0.1\text{ cm}^3$)					Average Change in Volume ($\pm 0.1\text{ cm}^3$)	Concentration of Ca ²⁺ in Solution ($5 \times 10^{-4}\text{ mol dm}^{-3}$)
	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5		

¹ Is the procedure of your own or it is adopted from somewhere? Write about it.

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8.4: Sample Calculation With Uncertainties

8.5: Graphing the Results

Title of the graph must be present.

8.6: Interpreting the Graph

9.0: Conclusion

10.0: Evaluation

10.1: Strengths of the Investigation

10.2: Limitations and Improvements

TABLE 4: LIMITATIONS AND IMPROVEMENTS		
Limitation	Justification and Effect	Improvement
Systematic error:		
Random error:		

10.3: Extensions

11.0: Works Cited