Systematic Qualitative Analysis - Calcium Carbonate

Experiment 23 - Practical Notes

Name: _____ Roll no.: _____ Date: _____

Aim

To analyse an assigned coded inorganic material and support its cation and anion identity.

Principle

Systematic analysis records preliminary observations, separate ion tests and confirmation. $CaCO_3$ is the instructor-confirmed teaching identity for this exercise; students must record observed evidence.

Requirements

- Coded material, clean tubes and separate aliquots
- Assigned qualitative-analysis reagents, positive controls and blank

Procedure

1. Preliminary examination

Record appearance and assigned solubility tests. White material with poor water solubility.

2. Plan aliquots

Prepare separate labelled portions for cation and anion analysis.

3. Perform prescribed reactions

Controlled acid addition gives carbon dioxide; prescribed limewater confirmation supports carbonate. Calcium is confirmed on a separate prepared aliquot by oxalate testing.

4. Check consistency

Compare with controls and resolve conflicting results before identifying the material.

5. Write report

State cation, anion, evidence and instructor confirmation.

Observations and Record

Stage	Observation	Inference
Appearance / solubility	_____	_____
Cation test	_____	_____
Cation confirmation	_____	_____
Anion test	_____	_____
Anion confirmation	_____	_____

Result

Cation identified: _____. Anion identified: _____. Supporting observations: _____. Instructor confirmation: _____.

Precautions

- Never taste the material or directly smell gases.
- Keep cation and anion aliquots separate.
- Use designated metal-containing waste where required.

Viva Questions and Answers

1. Which cation is expected here?

Calcium.

2. Which anion is expected here?

Carbonate.

3. Why is an unknown coded?

It makes the student base identification on evidence instead of the label.

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