

**CHEMISTRY** **ATAR Units 1 & 2**

Practical Investigation 2

**“Identify the Unknowns”**

**Background**

Different substances dissolve in water to varying extents. The different solubilities of these substances have several applications. Chemists can use the knowledge of solubilities to identify the presence of certain ions, to prepare compounds, in electrolytic processes, horticulture and in rehydration. It also helps in various forensic tests and separation methods.

**Equipment required**

Test tube rack

6 Test tubes

3 popsticks

dropper bottles of : sulfuric acid [H2SO4] 2 mol L-1

distilled water

calcium hydroxide (limewater) [Ca(OH)2]

three samples of white powders labelled – (any combination of A,B,C,D,E or F)

distilled water bottles

**Planning the investigation**

Plan an investigation to determine the identity of the unknowns.

Your investigation should be carried out on a small scale using 1 – 2 g of the samples.

Write your aim, list the chemicals and the equipment you need, the procedure you used to identify the samples and state any safety requirements identified.

Draw a flow diagram to show what you expect to observe when you conduct the experiment.

**Conducting the investigation**

Conduct the investigation, collecting and recording your observations in a table as you proceed.

**Processing the data and Evaluating the investigation**

Match the compound to the correct sample letter.

Provide the evidence to explain why you chose that compound.

Write Ionic equations for **all reactions or changes** you observed.

If no reaction or change state No Reaction.



**NAME :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**CHEMISTRY** **ATAR Units 1 & 2**

**TASK 14 ANSWER SHEET**

**(16 marks)**

Safety Glasses (2 marks)

AIM: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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(1 mark)

PROCEDURE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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(1 mark)

PROCESSING and EVALUATING: (12 marks)

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| Sample | Evidence and Ionic Equations |
|  | Chemical Name and Formula:  Evidence:  Ionic Equations:  (with H2O)    (with H2SO4)    (with Ca(OH)2) |
|  | Chemical Name and Formula:  Evidence:  Ionic Equations:  (with H2O)    (with H2SO4)    (with Ca(OH)2) |
|  | Chemical Name and Formula:  Evidence:  Ionic Equations:  (with H2O)    (with H2SO4)    (with Ca(OH)2) |

**TOTAL 16 marks**