

PRECIPITATES

BACKGROUND



If a chemical reaction occurs between two solutions it is possible for an insoluble product to be formed. These insoluble products are called precipitates and are most usually visible and often are coloured. The insoluble product is often in the form of a powder or possibly crystals. In

this investigation we will mix a variety of solutions of metal salts and observe if any precipitates form. When two solutions are mixed and an insoluble product forms two ions combine to form the precipitate, the other two ions remain in solution as spectator ions.

Solutions to be mixed: (TOP ROW OF RESULTS TABLE – see next page)

Sodium chloride (NaCl); Sodium Carbonate (Na_2CO_3); Potassium Iodide (KI);

Sodium Hydroxide (NaOH);

(LEFT HAND SIDE OF RESULTS TABLE)

Barium Chloride (BaCl_2); Silver Nitrate (AgNO_3); Lead(II) Nitrate ($\text{Pb}(\text{NO}_3)_2$);

Copper (II) Sulphate (CuSO_4); Iron(II) Sulphate (FeSO_4).

PROCEDURE:

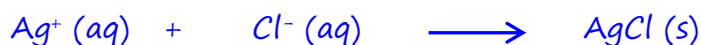
1. Draw up a table with the first four mentioned solutions across the top, and the remaining solutions down the left hand side.
2. Test each solution in the left-hand column with each of the solutions across the top.
 - To do this use the small micro test tubes and start with a 1cm depth of the first solution.
 - Add the second solution, shake the tube, and observe if any precipitate forms.
 - Look closely, if a precipitate forms, record what the precipitate looked like including its colour.
 - Record no precipitate if no change occurs when the solutions are mixed.



QUESTIONS

1. For each case in which a precipitate forms:
 - a) write a full balanced equation.
 - b) write the summary ionic equation.
 - c) write the name and symbol of the spectator ions.

(Don't forget the subscripts in your equations)



Spectator ions: sodium $\text{Na}^+(\text{aq})$ and nitrate $\text{NO}_3^-(\text{aq})$

2. By referring to the solubility table in textbook compare your results. List any examples where you obtained unexpected results.

Extra notes:

'PRECIPITATES PRACTICAL' RESULTS TABLE

In the table below indicate the following:

- Whether a precipitate, or not, occurred
- Description of precipitate (e.g colour, texture)

Reactants	NaCl	Na ₂ CO ₃	KI	NaOH
BaCl ₂				
AgNO ₃				
Pb(NO ₃) ₂				
CuSO ₄				
FeSO ₄				