WJEC (Eduqas) Chemistry A-level

SP C1.6b - Qualitative Analysis

Flashcards

Given the solutions below, how could you carry out a test to identify them from 6 unlabelled bottles?

$Ba(NO_3)_2$, $Pb(NO_3)_2$, $MgSO_4$, KI, Na_2CO_3, $Zn(NO_3)_2$

Given the solutions below, how could you carry out a test to identify them from 6 unlabelled bottles?

$Ba(NO_3)_2$, $Pb(NO_3)_2$, $MgSO_4$, KI, Na_2CO_3, $Zn(NO_3)_2$

1. Draw out a table to record all observations.
2. Test 2 cm^3 of each solution with a few drops of each of the other solutions in turn.
3. Record your observations in the table.

What is observed when $Ba(NO_3)_2$ is added to $Pb(NO_3)_2$?

What is observed when $Ba(NO_3)_2$ is added to $Pb(NO_3)_2$?

No reaction observed - solution remains colourless.

What is observed when $Ba(NO_3)_2$ is added to $MgSO_4$?

What is observed when $Ba(NO_3)_2$ is added to $MgSO_4$?

A white precipitate is produced.

What causes the white precipitate in the reaction between $Ba(NO_3)_2$ and $MgSO_4$?

What causes the white precipitate in the reaction between $Ba(NO_3)_2$ and $MgSO_4$?

The sulfate ions.

$BaSO_4$ is a white precipitate.

What is observed when $Ba(NO_3)_2$ is added to KI?

What is observed when $Ba(NO_3)_2$ is added to KI?

No reaction observed - solution remains colourless.

What is observed when $Ba(NO_3)_2$ is added to Na_2CO_3?

What is observed when $Ba(NO_3)_2$ is added to Na_2CO_3?

A white precipitate produced.

What causes the white precipitate in the reaction between $Ba(NO_3)_2$ and Na_2CO_3?

What causes the white precipitate in the reaction between $Ba(NO_3)_2$ and Na_2CO_3?

The carbonate ions.

$BaCO_3$ is a white precipitate.

What is observed when $Pb(NO_3)_2$ is added to $MgSO_4$?

What is observed when $Pb(NO_3)_2$ is added to $MgSO_4$?

A white precipitate is produced.

What causes the white precipitate in the reaction between $Pb(NO_3)_2$ and $MgSO_4$?

What causes the white precipitate in the reaction between $Pb(NO_3)_2$ and $MgSO_4$?

The sulfate ions.

$PbSO_4$ is a white precipitate.

What is observed when $Pb(NO_3)_2$ is added to KI?

What is observed when $Pb(NO_3)_2$ is added to KI?

A yellow precipitate is produced.

What causes the yellow precipitate in the reaction between $Pb(NO_3)_2$ and KI?

What causes the yellow precipitate in the reaction between $Pb(NO_3)_2$ and KI?

The iodide ions.

PbI_2 is a yellow precipitate.

What is observed when $Pb(NO_3)_2$ is added to Na_2CO_3?

What is observed when $Pb(NO_3)_2$ is added to Na_2CO_3?

A white precipitate is produced.

What causes the white precipitate in the reaction between $Pb(NO_3)_2$ and Na_2CO_3?

What causes the white precipitate in the reaction between $Pb(NO_3)_2$ and Na_2CO_3?

The carbonate ions.

$PbCO_3$ is a white precipitate.

What is observed when $MgSO_4$ is added to KI?

What is observed when $MgSO_4$ is added to KI?

No reaction observed - solution remains colourless.

What is observed when $MgSO_4$ is added to Na_2CO_3?

What is observed when $MgSO_4$ is added to Na_2CO_3?

A white precipitate is produced.

What causes the white precipitate in the reaction between $MgSO_4$ and Na_2CO_3?

What causes the white precipitate in the reaction between $MgSO_4$ and Na_2CO_3?

The carbonate ions.

$MgCO_3$ is a white precipitate.

What is observed when $MgSO_4$ is added to $Zn(NO_3)_2$?

What is observed when $MgSO_4$ is added to $Zn(NO_3)_2$?

No reaction observed - solution remains colourless.

What is observed when KI is added to $Zn(NO_3)_2$?

What is observed when KI is added to $Zn(NO_3)_2$?

No reaction observed - solution remains colourless.

What is observed when KI is added to Na_2CO_3?

What is observed when KI is added to Na_2CO_3?

No reaction observed - solution remains colourless.

What is observed when $Zn(CO_3)_2$ is added to Na_2CO_3?

What is observed when $Zn(CO_3)_2$ is added to Na_2CO_3?

A white precipitate is produced.

What causes the white precipitate in the reaction between $Zn(CO_3)_2$ and Na_2CO_3?

What causes the white precipitate in the reaction between $Zn(CO_3)_2$ and Na_2CO_3?

The carbonate ions.

$Zn(CO_3)_2$ is a white precipitate.

Why does it not matter exactly how much of each solution is added to the other?

Why does it not matter exactly how much of each solution is added to the other?

It is qualitative analysis which means the exact measurements are not being recorded. It only matters that enough of the solution is added for a possible reaction to be observed.