Precipitation Reactions - Validation  
**Task 10 Name:**

/24

1. What was the aim of this experiment?

(1 mark)

1. In this experiment we used solubility to determine the identity of unknown ionic compounds. Explain, using a labelled diagram, why a salt (such as NaCl) can dissociate in water.

(4 marks)

1. In order to differentiate between Na2CO3 and Zn(NO3)2, we used BaCl2 dissolved in water.
   1. In the space below, write the full chemical equation for the reaction of Na2CO3 and BaCl2, remember to include states.

(3 marks)

* 1. Next, write the ionic equation for the reaction of Na2CO3 and BaCl2.

(2 marks)

* 1. Write down the observations you would expect to see from doing this reaction.

(2 marks)

* 1. List one other technique that could be used to discern the difference between Na2CO3 and Zn(NO3)2.

(1 mark)

1. A group of students performed a similar experiment in which they had to differentiate between 4 unknown chemicals – Pb(NO3)2, CaCl2, CuSO4, and Sr(OH)2. The results they got are shown in the table below:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** | **D** |
| **Addition of water** | Blue solution | Colourless solution | Colourless solution | Colourless solution |
| **Addition of NaI** |  | No change | Yellow precipitate | No change |
| **Addition of Na2SO4** |  | White precipitate |  | No change |

1. Giving a reason why, give the chemical formula for chemical A.

(2 marks)

1. Identify the products you would expect to see for combining Pb(NO3)2 with NaI, CaCl2 with NaI, and Sr(OH)2 with NaI.

(3 marks)

1. Hence, identify (with a reason) the chemical formula for chemical C.

(2 marks)

1. Identify the products you would expect to see for the reaction of CaCl2 with Na2SO4 and Sr(OH)2 with Na2SO4.

(2 marks)

1. Hence, identify the chemical formula for chemicals B and D.

(2 marks)