

## Year 11 Chemistry Assignment – Solubilities of Salts

1. Write correct formulae for the following ionic salts, and after each one, state whether that compound is soluble (aq) or insoluble (s) in water.
  - a) Calcium fluoride
  - b) Sodium iodide
  - c) Magnesium sulfide
  - d) Zinc carbonate
  - e) Lead chloride
  - f) Ammonium carbonate
  - g) Silver nitrate
  - h) Potassium phosphate
  - i) Aluminium hydroxide
  - j) Iron II sulfate
  
2. For each of the following, write balanced molecular equations. If a precipitate forms, then write an ionic equation also.
  - a) Solutions of silver nitrate and sodium chloride are mixed.
  - b) Solutions of zinc sulfate and barium chloride are mixed.
  - c) Solutions of ammonium phosphate and nickel nitrate are mixed.
  - d) Solutions of potassium iodide and magnesium sulfate are mixed.
  - e) Solutions of lead nitrate and sodium iodide are mixed.
  
3. As a brilliant chemist, you have been given the task of identifying an unknown white powder. You are told it must be a nitrate salt of sodium, lead, magnesium or ammonium. Explain how you would go about identifying which of these ionic species was in the white powder.
  
4. Identify the 10 cations on the back of this sheet.

**1 to 10** are cations, and are reacted with anions, flame or litmus as shown in the left column. Identify the positive ions.

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
<b>Cl<sup>-</sup></b>	Soluble	Insoluble	Soluble	Soluble	Soluble	Soluble	Soluble	Soluble	Insoluble	Soluble
<b>OH<sup>-</sup></b>	Soluble	Insoluble	Soluble	Insoluble	Insoluble	Insoluble	Insoluble	Soluble	Insoluble	Soluble
<b>SO<sub>4</sub><sup>2-</sup></b>	Soluble	Slightly soluble	Soluble	Insoluble	Soluble	Slightly soluble	Soluble	Soluble	Insoluble	Soluble
<b>CO<sub>3</sub><sup>2-</sup></b>	Soluble	Insoluble	Soluble	Insoluble	Insoluble	Insoluble	Dark green precipitate	Soluble	Insoluble	Soluble
<b>I<sup>-</sup></b>	Soluble	Pale yellow solid	Soluble	Soluble	Soluble	Soluble	Soluble	Soluble	Strong yellow precipitate	Soluble
<b>Flame</b>	Pink	No info	No info	Pale green	Green/blue	Red	No info	No info	No info	Yellow
<b>Litmus</b>	No info	No info	Red	No info	No info	No info	No info	No info	No info	No info
<b>Boiling</b>	No info	No info	No info	No info	No info	No info	No info	Odour	No info	No info