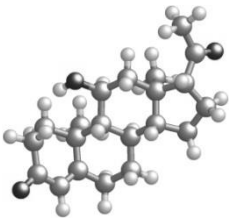


Chem!stry

Name: …… **( )**

Class: ……

Date: …… **/** …… **/** ……

Salt Preparation

Information – Reactions:

There are four different reactions which may be used to prepare a salt in the laboratory:

1. acid + metal → salt + hydrogen

2. acid + base (alkali) → salt + water

3. acid + carbonate → salt + water + carbon dioxide

4. *soluble* salt A + *soluble* salt B → *insoluble* salt C + *soluble* salt D

Remember – in general, a salt is an ionic compound that is produced when the hydrogen contained within an acid is replaced with a metal.

Information – Solubility of Salts:

● All sodium, potassium and ammonium salts are <u>soluble</u> in water, *e.g.* NaC*l*, K_2SO_4, $(NH_4)_2CO_3$.

● All nitrates are <u>soluble</u> in water, *e.g.* $Cu(NO_3)_2$, $AgNO_3$, $Ba(NO_3)_2$.

● All chlorides are <u>soluble</u> in water except silver chloride (AgC*l*), lead(II) chloride ($PbCl_2$) and mercury(I) chloride (Hg_2Cl_2) which are <u>insoluble</u> in water.

● All sulphates are <u>soluble</u> in water except silver sulphate (Ag_2SO_4), lead(II) sulphate ($PbSO_4$), barium sulphate ($BaSO_4$) and calcium sulphate ($CaSO_4$) which are <u>insoluble</u> in water.

●All carbonates are <u>insoluble</u> in water except sodium carbonate (Na_2CO_3), potassium carbonate (K_2CO_3) and ammonium carbonate ($(NH_4)_2CO_3$) which are <u>soluble</u> in water.

● All hydroxides are <u>insoluble</u> in water except sodium hydroxide (NaOH), potassium hydroxide (KOH), ammonium hydroxide (NH_4OH) and barium hydroxide ($Ba(OH)_2$) which are <u>soluble</u> in water.

Instructions for the Activity:

● Decide whether each of the salts being prepared on pages 2 and 3 is <u>soluble</u> or <u>insoluble</u> in water.

● Decide which reagents could be used to prepare the salt. Are the reagents soluble or insoluble in water?

● Write a <u>word equation</u> to describe the preparation of the salt.

● Write a <u>balanced chemical equation</u> to describe the preparation of the salt.

● Write a <u>balanced ionic equation</u> to describe the preparation of the salt.

● State symbols are now very important – so remember to include them!

● State the method that would be used to prepare the salt. Options are:

→ Ionic precipitation.

→ Titration.

→ Excess insoluble base / carbonate.

Reaction One:

- Word Equation:

…… + …… → *sodium nitrate* + ……

- Balanced Chemical Equation:

…… + …… → ……

- Ionic Equation:

…… + …… → ……

- Method:

……

Reaction Two:

- Word Equation:

…… + …… → *copper(II) chloride* + ……

- Balanced Chemical Equation:

…… + …… → ……

- Ionic Equation:

…… + …… → ……

- Method:

……

Reaction Three:

- Word Equation:

…… + …… → *barium sulphate* + ……

- Balanced Chemical Equation:

…… + …… → ……

- Ionic Equation:

…… + …… → ……

- Method:

……

Reaction Four:

- Word Equation:

…… + …… → *potassium chloride* + ……

- Balanced Chemical Equation:

…… + …… → ……

- Ionic Equation:

…… + …… → ……

- Method:

……

Reaction Five:

- Word Equation:

…… + …… → *zinc nitrate* + ……...

- Balanced Chemical Equation:

…… + …… → ……

- Ionic Equation:

…… + …… → ……

- Method:

……

Reaction Six:

- Word Equation:

…… + …… → *silver chloride* + ……..

- Balanced Chemical Equation:

…… + …… → ……

- Ionic Equation:

…… + …… → ……

- Method:

……

Reaction Seven:

- Word Equation:

…… + …… → *lead(II) carbonate* + ……..

- Balanced Chemical Equation:

…… + …… → ……

- Ionic Equation:

…… + …… → ……

- Method:

……

Reaction Eight:

- Word Equation:

…… + …… → *magnesium chloride* + ……..

- Balanced Chemical Equation:

…… + …… → ……

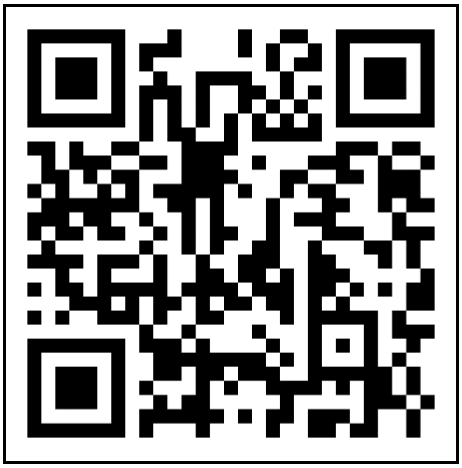
- Ionic Equation:

…… + …… → ……

- Method:

……

- Scan the QR code below for the answers to this assignment.



http://www.chemist.sg/acids/salt_prep_ans.pdf