

Metal acid reactions.

Answer all the questions below then check your answers

- 1 Name 3 common mineral acids.
- 2 What do all acids contain in their formula?
 - a. What is a salt?
- 3 Write a general equation to show what forms when a metal reacts with an acid?
- 4 Complete the word equations below

Hydrochloric Acid- Always gives salts called chloride

i. iron + hydrochloric acid →

ii zinc + hydrochloric acid →

2 Sulphuric acid - Always gives salts called Sulphate

i calcium + sulphuric acid →

ii magnesium + sulphuric acid →

3 *Nitric acid always gives salts called Nitrate*

i magnesium + Nitric acid →

ii calcium + Nitric acid →

4 Complete the following equations:

i zinc + sulphuric acid →

ii aluminium + hydrochloric acid →

4. Write symbolic equations for some of these reactions. Use the table below to help you

ion	formula
chloride	Cl ⁻
nitrate	NO ₃ ⁻
sulfate	SO ₄ ²⁻

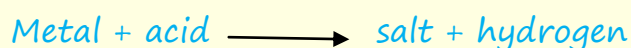
5. In each of these equations where the acid reacts with a metal where is the hydrogen gas that is produced coming from?

- a. Write an ion-electron half equation to show how the hydrogen is produced.
- i. Is the reaction which produces hydrogen an oxidation or a reduction reaction?
- b. What happens to the metal in these reactions, is it oxidised or reduced?
- i. Write an ion-electron equation to show how magnesium ions are oxidised when they react with hydrochloric acid.

Metal acid reactions.

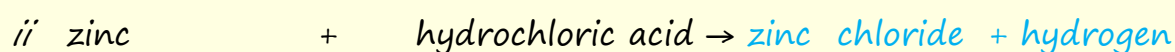
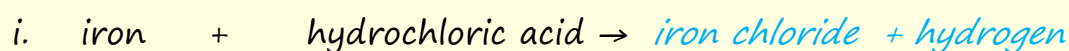
Answer all the questions below then check your answers

- 1 Name 3 common mineral acids. *Hydrochloric, nitric, sulfuric acids*
- 2 What do all acids contain in their formula? *Hydrogen ions, H⁺_(aq)*
- a. What is a salt? *General definition which covers most examples is: a salt is an acid where the hydrogen is replaced by a metal.*
- 3 Write a general equation to show what forms when a metal reacts with an acid?

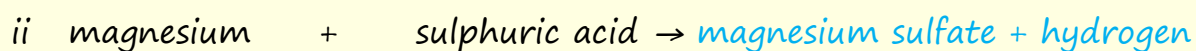
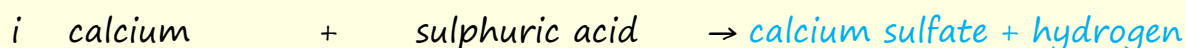


- 4 Complete the word equations below

Hydrochloric Acid- Always gives salts called chloride



2 Sulphuric acid - Always gives salts called Sulphate



3 *Nitric acid always gives salts called Nitrate*

i magnesium + Nitric acid → magnesium nitrate + hydrogen

ii calcium + Nitric acid → calcium nitrate + hydrogen

4 Complete the following equations:

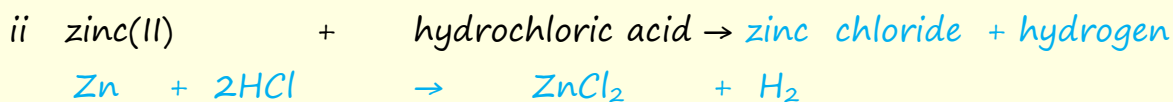
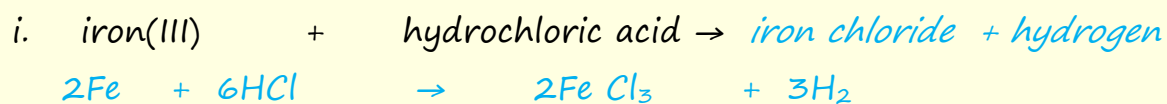
i zinc + sulphuric acid → zinc sulfate + hydrogen

ii aluminium + hydrochloric acid → aluminium chloride + hydrogen

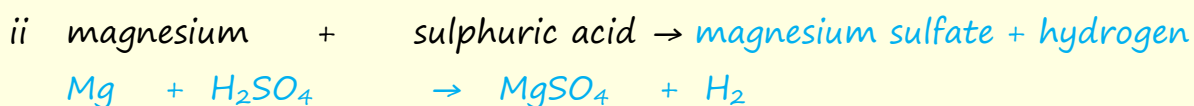
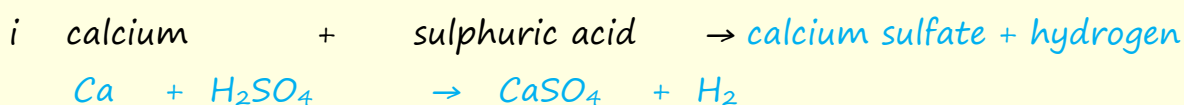
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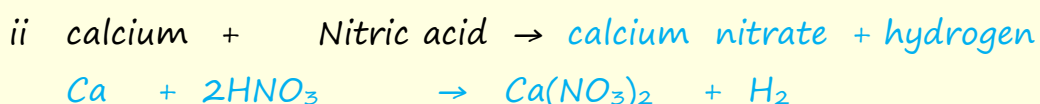
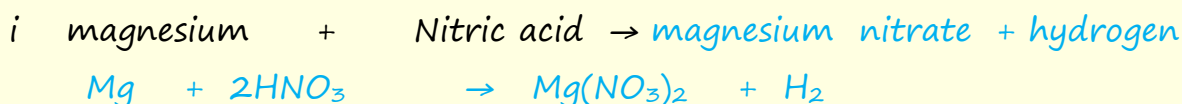
Hydrochloric Acid- Always gives salts called chloride



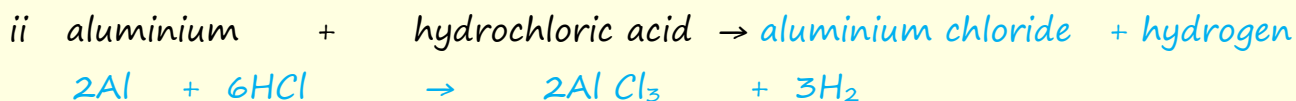
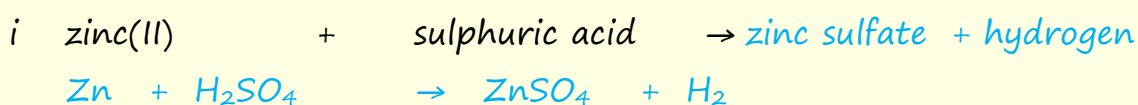
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3 Nitric acid always gives salts called Nitrate

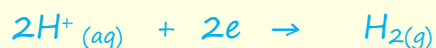


4 Complete the following equations:



5. In each of these equations where the acid reacts with a metal where is the hydrogen gas that is produced coming from? *It comes from the acid, the hydrogen ions in the acid are reduced to form hydrogen gas.*

a. Write an ion-electron half equation to show how the hydrogen is produced.



i. Is the reaction which produces hydrogen an oxidation or a reduction reaction?
Reduction, it's a gain of electrons (remember OILRIG)

b. What happens to the metal in these reactions, is it oxidised or reduced?
The metal atoms are oxidised when they react with the acid. They lose electrons and form positively charged metal ions.

i. Write an ion-electron equation to show how magnesium ions are oxidised when they react with hydrochloric acid.

