

C3 Factsheet for revision: Chemical reactions

1. In a chemical reaction, the materials we start with are called **reactants**
2. In a chemical reaction, the materials we make are called **products**.
3. Chemical reactions are irreversible and new materials are made.
4. Physical changes are reversible and no new material is made.
5. Changes of state, eg evaporation and melting are examples of physical changes.
6. In a chemical reaction, the atoms are rearranged.
7. A chemical reaction can be shown as a word equation or as a symbol equation
Eg. Magnesium + Oxygen \square Magnesium oxide (Word equation)
 $2 \text{ Mg} + \text{ O}_2 \square 2 \text{ MgO}$ (Symbol or formula equation)
8. An arrow is used in equations for reactions to show the reactants turn into new products.
9. Mass is conserved in a chemical reaction (it stays the same as no atoms are gained or lost- they are just rearranged). E.g. 10g of water boils to form 10g of steam or freezes to form 10g of ice. This is called Conservation of Mass.
10. **Oxidation** is a chemical reaction where oxygen is gained. Oxygen is a reactant.
11. **Oxygen** as an element is a diatomic molecule O_2 . When it reacts the 2 atoms break apart.
12. Products of oxidation reactions are called **oxides**.
13. The mass of a metal increases when it oxidises as oxygen atoms attach to the metal.
14. **Combustion** (burning) is an example of an oxidation reaction. It causes a flame.
15. Some substances form products that are gases when they burn so their mass appears to decrease.
16. **Thermal decomposition** is a reaction when heat is used to split compounds.
17. An **acid** is a substance that has a pH of less than 7
18. An **alkali** is a substance with a pH of more than 7.
19. Acids contain hydrogen ions H^+
20. Alkalis contain hydroxide ions OH^-
21. When an alkali is added to an acid the pH increases.
22. Hydrogen ions H^+ react with hydroxide ions OH^- to form water which is neutral.
23. A **neutralisation** reaction occurs when an acid and an alkali make a salt and water.