

Writing Chemical Equations

Chemical equations allow us to write a short description of a chemical reaction. Like in mathematics, chemical equations have a structure that we must follow for them to make sense. In general the formula is:



Symbol	Purpose in Chemical Reaction
+	Two or more reactants are involved
\longrightarrow	Yields, direction of chemical change
\rightleftharpoons	Reversible reaction

A reactant is a chemical that is used up during a chemical reaction.

A product is a chemical that is created during a chemical reaction.

Some general equation types

Spontaneous

- Occurs without any special conditions/energy input

Non-spontaneous

- Requires a catalyst

Exothermic

- Heat is produced/given off

Endothermic

- Heat is required/absorbed

A catalyst is a substance that speeds up/forced a chemical reaction. It is neither a reactant, nor a product - it is not a participant in the chemical reaction.

Chemical

Heat

UV Light

Pressure

For each reactant and product, we should indicate the state of matter. We do this by including the state symbol as a subscript after the compound.

Solid	(s)
Liquid	(l)
Gas	(g)
Aqueous	(aq)

Aqueous: a substance dissolved in water

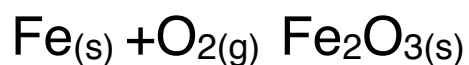
Example: $\text{NaCl}_{(s)}$ vs $\text{NaCl}_{(aq)}$ vs $\text{NaCl}_{(l)}$

Word Equations: Reactants and products are identified by name only.

iron + oxygen \longrightarrow iron (III) oxide

copper + silver nitrate \longrightarrow silver + copper (II) nitrate

Skeleton equations: chemical equation in which products and reactants are represented by their chemical formulas. Relative quantities are not included.



Homework: p 115 # 1-5, p. 117 # 1, 2, 5