

CONCEPT MAP

Redox Reactions

Oxidation

- Addition of oxygen
- Removal of hydrogen
- Loss of electron(s)
- Increase in the oxidation number of an atom(s)

Oxidising agent or oxidant

Substance which supplies oxygen, removes hydrogen. It is itself reduced after the oxidation.

Reduction

- Removal of oxygen
- Addition of hydrogen
- Gain of electron(s)
- Decrease in the oxidation number of an atom(s)

Reducing agent or reductant

Substance which supplies hydrogen or removes oxygen. It is itself oxidised after the reduction.

Redox reactions

Direct redox reactions

Oxidation and reduction reactions occur in the same solution (in same vessel).
Net movement of electrons in any direction is zero.

Indirect redox reactions (electro-chemical reaction)

Oxidation and reduction reactions take place in different vessel. Electrons moves from one electrode to another through an external conducting wire.

Balancing of redox reactions

Oxidation number method

Total gain in the oxidation numbers = Total loss in the oxidation numbers

Ion-electron method or Half-equation method

Electrons lost during oxidation half reaction = Electrons gained during reduction half reaction

Oxidation number

Charge which the atoms appears to have acquired when all other atoms in the species are removed as ions.