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ELECTRODE PROCESSES

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The reactions accompanied by a change of atom oxidation number of elements are called

oxidation-reduction reactions.

The particles which accept electrons are called oxidizers.

The particles which donate electrons are called reducers.

$$Fe^{2+} + Ce^{4+} \leftrightarrow Fe^{3+} + Ce^{3+}$$

Oxidized and reduced forms of one substance involved in the half-reaction compose *redox couple*:

$$Fe^{2+} - \bar{e} \leftrightarrow Fe^{3+}$$
$$Ce^{4+} + \bar{e} \leftrightarrow Ce^{3+}$$

Electrode or redox potential (E)

is the quantitative measure of redox power of different redox reactions.

A conductor (metal) immersed into a solution of its salt is called electrode

Potential difference arising on the electrode-solution interfase is called electrode potential

Potential difference between electrodes is known as *electromotive force (EMF)*

$$EMF = E_{cathode} - E_{anode}$$

EMF of a chemical reaction is equal to difference between redox potentials of a redox couple

$$EMF = E_{ox} - E_{red}$$

The potentials difference that occurs in the tissues of living organisms is called bioelectric potential.

Redox and membrane potential in biology and medicine

- Many organs, such as heart, brain, muscles, eyes manifest their function trough electric activity

- Therefore such diagnostic methods as electrocardiogram, electro encephalogram, electromyogram and electrooculogram are used