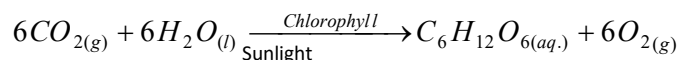


Important applications of redox-reactions.

Many applications are based on redox reactions which are occurring in environment. Some important examples are listed below;

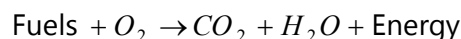
(1) Many metal oxides are reduced to metals by using suitable reducing agents. For example Al_2O_3 is reduced to aluminum by cathodic reduction in electrolytic cell. Fe_2O_3 is reduced to iron in a blast furnace using coke.

(2) Photosynthesis is used to convert carbon dioxide and water by chlorophyll of green plants in the presence of sunlight to carbohydrates.



In this case, CO_2 is reduced to carbohydrates and water is oxidized to oxygen. The light provides the energy required for the reaction.

(3) Oxidation of fuels is an important source of energy which satisfies our daily need of life.



In living cells, glucose ($C_6H_{12}O_6$) is oxidized to CO_2 and H_2O in the presence of oxygen and energy is released, $C_6H_{12}O_{6(aq)} + 6O_{2(g)} \rightarrow 6CO_{2(g)} + 6H_2O_{(l)} + \text{Energy}$

(4) The electrochemical cells involving reaction between hydrogen and oxygen using hydrogen and oxygen electrodes in fuel cells meet our demand of electrical energy in space capsule.

(5) Respiration in animals and humans is also an important application of redox reactions.