



19CH101- ENGINEERING CHEMISTRY

Unit-5 ENERGY SOURCES AND STORAGE DEVICES

SOLAR ENERGY

The energy that derive directly from sunlight and can be converted into more useful forms is known as Solar energy.

SOLAR ENERGY CONVERSION

Solar energy conversion describes technologies devoted to the transformation of solar energy to other (useful) forms of energy, including electricity, fuel, and heat. It covers light-harvesting technologies including traditional semiconductor photovoltaic devices (PVs), emerging photovoltaics, solar fuel generation via electrolysis, artificial photosynthesis, and related forms of photocatalysis directed at the generation of energy rich molecules.

PRINCIPLE:

The principle of Solar cell is based on photovoltaic effect. When light radiation falls on the p-n junction semi conductor device, charge separation takes place and a potential difference is setup. This causes flow of electrons and produces electricity.

WORKING:

When sun rays all on the top layer of p- type semiconductor, electrons from valence band are promoted to conductance band and cross the p-n junction into the n-type semiconductor. A potential difference is set up between the two layers. This causes flow of electrons and produces electricity. When the "p" and "n" layers are connected to an external circuit, electrons flow from "n" layer to "p" layer and current is generated.



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