

According to the law of conservation of energy, energy can neither be created nor be destroyed, it can only be changed from one form to another. Thus, we cannot produce energy to do certain work. Therefore we use certain substances which help us transform one form of energy to another form. For example, when we burn paper with a match stick light is produced. If we analyze this closely, light energy is not created over there, it has just been produced due to the transformation of heat energy provided by the match stick into light energy. Thus, we always need certain substance to convert one form of energy into another for accomplishing various jobs. We call such materials as fuels. In other words, any substance which upon combustion produces a usable amount of energy is known as fuel. For example fossil fuels (coal and petroleum), biogas, nuclear energy, etc. Such materials can further be classified into renewable (one which is inexhaustible) and non-renewable (one which is exhaustible).



Solar Panels

Now, the energy produced by burning a paper is not sufficient to run cars but energy produced by burning petrol is enough to do so. Thus, we can say that each fuel releases its own set of energy i.e. all of them do not release the same amount of energy upon combustion. The energy produced by combustion of one kg of fuel is known as its calorific value. Thus, we can differentiate different fuels on the basis of their calorific value for their efficient usage. Furthermore, each of them has a different cost with respect to another. Some are cheaper while others are expensive. Therefore we categorize fuel as an ideal based on different criteria. Some properties of ideal fuel are:

An ideal fuel is readily available.

An ideal fuel is cheap.

An ideal fuel burns easily in the air at a moderate rate.

It releases a large amount of energy.

It should not leave behind any undesirable substances which can be harmful to us.

It should not affect the environment adversely.