

The literal meaning of thermodynamics = heat, dynamics: motion, here is the study of flow of heat, but in broad sense we can say, that it is a science & technology which deals with the study of general processes of heat energy & their inter-relationships. Other form of energy is called ~~thermodynamics~~ some important terms:-

Thermodynamic System: That part of the system which is under investigation for change in energy is called thermodynamic system. Actually that specific area where we are about change in energy or interconversion of energy is called ~~the~~ thermodynamic system.

Thermodynamic Surrounding: Except the system in the universe everything is surrounding.

Boundary: That imaginary or real surface which separates system & surrounding is called boundary. It may be diathermic or adiabatic or rigid or movable.

Classification of thermodynamic Sys

(A) On the basis of mass & energy: this basis it is of three types:

i) Open System ii) Close System iii) Iso

i. Open System: That thermodynamic through which mass & energy both exchanged from surrounding is Open System. i.e. A cup of hot

ii) Close System: That thermodynamic through which mass can not but can be exchanged from surrounding. Called Close System. i.e. A ^{closed} metallic tiffin box. whose mass of food can exchanged but energy can be exchanged with surrounding.

iii) Isolated System: That thermodynamic through which neither mass nor energy can be exchanged from surrounding i.e. thermos flask.

(B) On the basis of Composition: → basis it is of two types: i) Homoge

i.e. A glass of hot water.

ii) Heterogeneous System: That thermodynamic system through which mass in which composition is made up of two or more phases are called heterogeneous system. i.e. A glass of hot water including salt.

(c) On the basis of functions: —
On the basis of thermodynamic systems are of two types: i) Ideal System ii) Real -

i) Ideal System: That thermodynamic system which converts the given energy completely into work, or $\eta = 100\%$. (Perpetual Motion Machine: Practically no system is ideal.)

ii) Non-ideal or real system: That thermodynamic system which converts a fraction of heat into work, means $\eta \neq 100\%$. All the thermodynamic systems are non-ideal or real systems.

Note: All living systems need to be thermodynamic systems because they can exchange energy with surroundings.