

1. To engineer thermodynamics helps in:

- calculation of the amount of work that can be derived from a given specific amount of fuel.
- Determination of the efficiency of the system or machine

2. To a manufacturing chemist thermodynamics helps in:

- Establishing the stability of a product
- Establishing the maximum yield expected from thermodynamics calculation
- Avoiding undesirable by-products by telling us the optimum conditions of temperatures and pressure expected
- The proper choice of solvent to use for a systematic chemist as well as an analytic chemist

Limitations of thermodynamics

- ❖ it does not tell us when the reaction starts, or how fast the reaction takes place in case calculations of the thermodynamics indicate the occurrence of the reaction
- ❖ apart from the three types of state discussed above there is also: a **diathermic** system -where the system permits heating as a mode of transfer of energy

a diabolic -where the system does not permit heating even though there is a difference in temperatures

exothermic-is a process in a system that heats or releases heat into the surroundings

endothermic-is a process in the system that is heated by the surroundings or absorbs heat from the surrounding

state of the system -is a condition of the system when macroscopic properties have definite measurable values if any of the macroscopic properties of a system changes such as temperatures and pressure the state of the system also changes

Isochoric process-Is a constant temperature process

The cyclic process is- one in which the system returns to its initial state after undergoing a series of changes

Isobaric process-is a constant pressure process