Definition of Eutectic point

- In a two-component system, there are several types of solid-liquid equilibrium systems. One such type where two components of such a system are completely *miscible* with one another in liquid sate and they do not form any compound, on solidification they give rise to an intimate mixture known as *eutectic*. Examples being, Pb-Ag, Pb-Sb, KI-water system, etc.

- *Eutectic basically means easy to melt.*

- A binary system in which two components are miscible in all proportions in the liquid state, but do not react chemically, and each component has the property of lowering each others freezing point is called eutectic system. A solid solution that has the lowest freezing point of all the possible mixture of the components is known as "Eutectic mixture".

- ***Definition***: The minimum freezing point attainable corresponding to the eutectic mixture is known as **"Eutectic Point"**(which means lowest melting point).

  - This is the point where all the three phases of the solid-liquid system namely, liquid melt of the two metals and the solid phases of each of the components respectively co-exist at equilibrium.
  - The composition of the components corresponding to the eutectic point has the *lowest melting point*.
  - The system is *invariant* at this point (i.e. the degrees of freedom or variance is zero) and also has a definite *temperature* and *composition*.
- **(It could be considered analogous to the "Triple point" of a one-component system where all the three states of the substance co-exist at equilibrium.)**