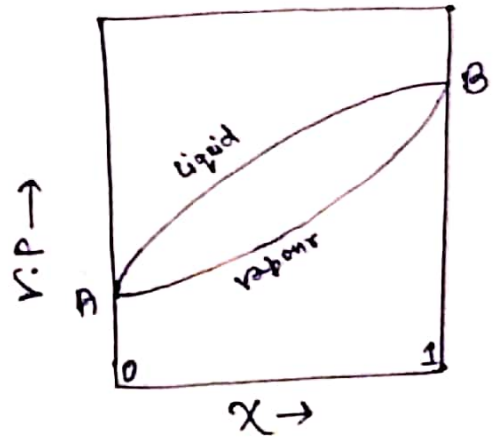
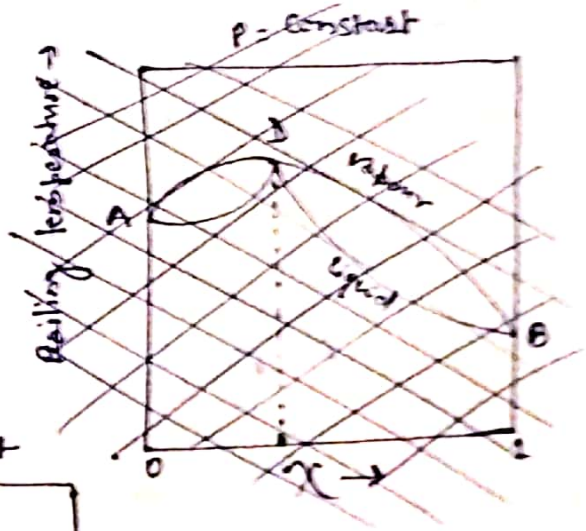
* Vapour Pressure – Composition and Boiling point – Composition of Completely miscible – Binary Solutions :-

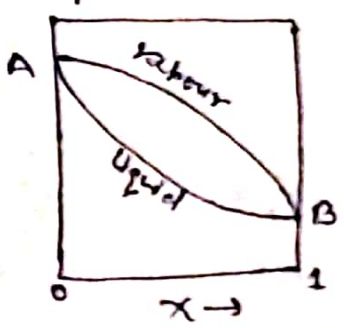
Let us consider a binary mixture consisting of two liquid components A and B which are completely miscible with each other. On heating under constant pressure. It will start boiling at a temperature at which its total vapour pressure becomes equal to the atmospheric pressure. A solution of higher vapour pressure will boil at a lower temperature and solution of higher vapour pressure will boil at a lower temperature and vice-versa.

There are three type of mixture:

Type-I Here the vapour pressure changes continuously with Composition of the mixture. The vapour pressure of pure A is the lowest and that of pure B is the highest. When the vapour pressure of mixture A and B lie in between the two extreme values, their boiling point also lie in between.

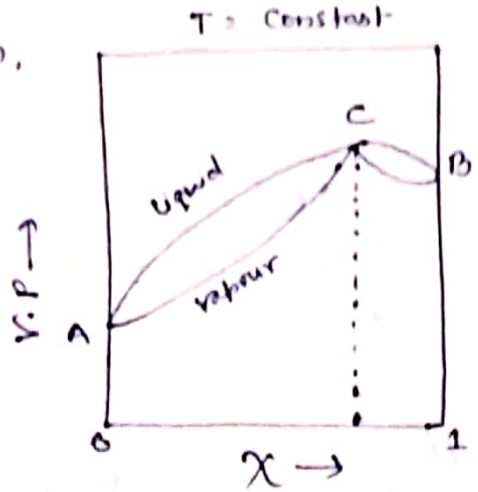




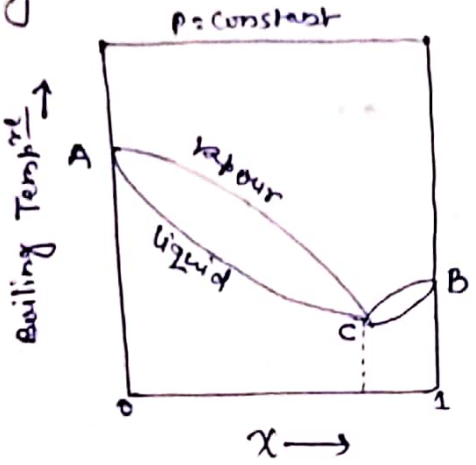


Type-II

The vapour pressure-curve shows a maximum for a certain composition.

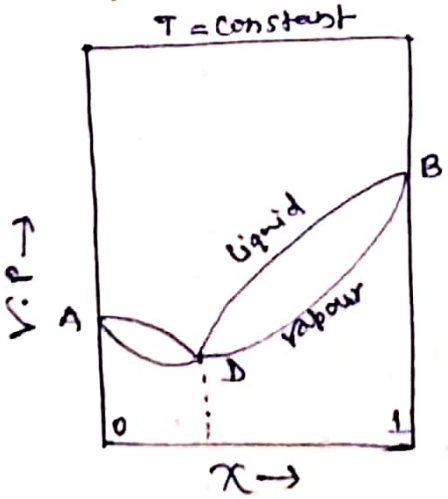


The solution of that composition will boil at the lowest temperature. This will give rise to a minimum in the boiling point curve.



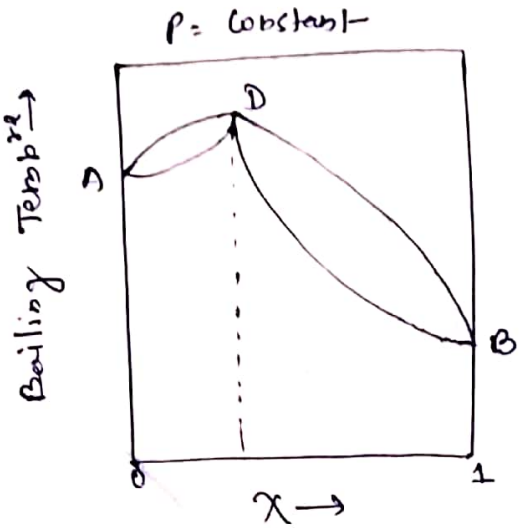
Type-III

The vapour pressure curve shows a minimum for a certain composition.



The solution of that composition will boil at the highest temperature. Consequently, the boiling point curve will show a maximum, as represented. In all boiling point curves, the vapour-

Pressure composition curve will lie above the liquid-composition curve.



from
Dr. A.K. Gupta
chemistry (L.S. College)