

* Vapour Pressure of Non-ideal Solution:-

(34)

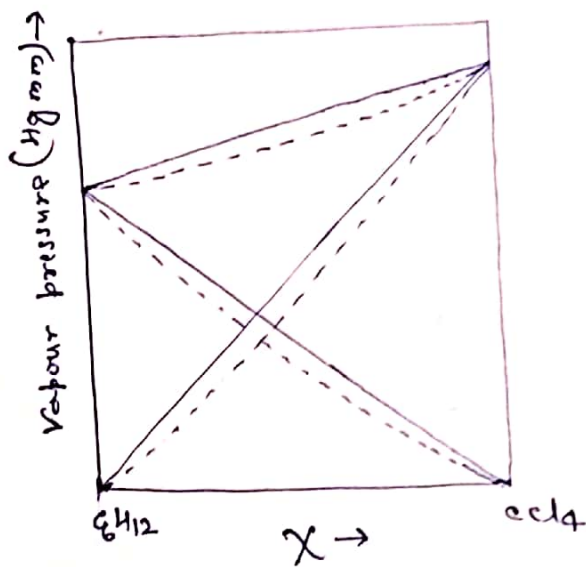
The vapour pressure of a solution is given by Raoult's law. Very few solutions obey Raoult's law over its entire range of composition. Most of them show deviations from the ideal behaviour in their vapour pressure.

Such solutions are divided into three categories:-

Type-

(1).

- This type of solutions shows small +ve deviations from ideal behaviour. The vapour pressure of each component being only slightly greater than that predicted by Raoult's law. The total vapour pressure in such case remains always within the vapour pressure of pure components.

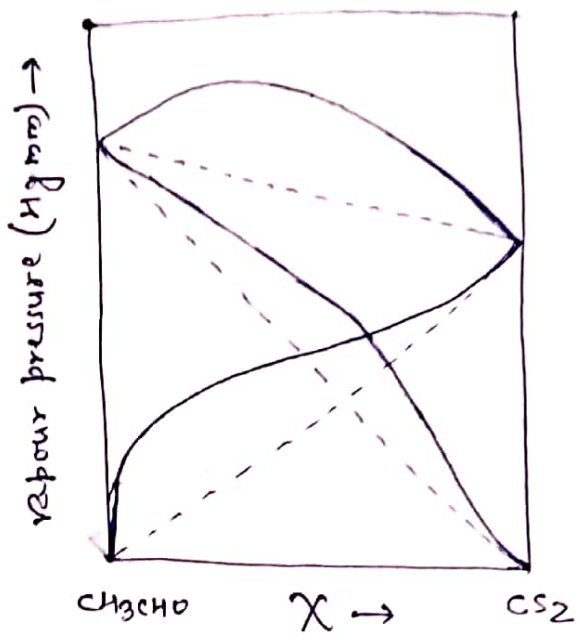


Where solid lines represents real behaviour & dotted lines represent an ideal behaviour.

for example - cyclohexane - CCl_4 system.

Type - (2)

This type of solution show large +ve deviation from an ideal behaviour. The vapour pressure of each component being considerably greater than that predicted by Raoult's law. The total vapour pressure curve rises to a maximum.

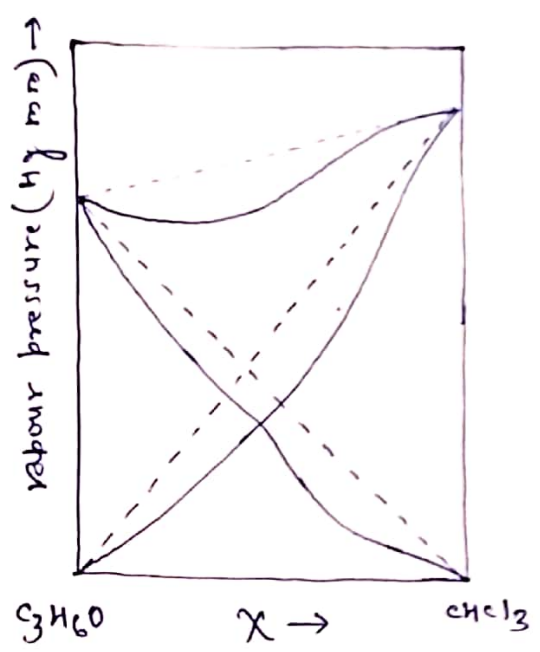


Where dotted lines represents an ideal behaviour & solid lines represents real behaviour.

for examples - Acetaldehyde (CH_3CHO) - Carbon disulphide (CS_2) system, H_2O & propanol systems.

Type - (3)

This type of solution show large -ve deviation from an ideal behaviour. The vapour pressure of each component is considerably less than that predicted by Raoult's law. The total vapour pressure curve dips to a minimum. i.e. for a certain composition, the total vapour-pressure of the ~~mixture~~ mixture is below the vapour pressure of either of the pure components.



Where solid lines represents real behaviour & dotted lines represents an ideal behaviour.

'χ' represent the mole fraction.

for example → Acetone (C_2H_6O) - chloroform ($CHCl_3$) systems.
 H_2O & Sulphuric acid systems.

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