

Answer on Question #38566-Chemistry-Inorganic Chemistry

Question

Why does the concentration vary?

Answer

Since it is not specified in the question, which concentration is meant, the question is very general.

In general a concentration varies either when amount (mass, number of moles) of dissolved substance (solute) varies or when amount (mass, number of moles or volume) of solvent varies. So, it is obvious that concentration varies when solution is prepared using different amount of substances.

In addition, a concentration may vary even when solutions were prepared identically. It is due to the change either in the amount of solute or in the amount (volume) of solvent.

The amount of solute may change due to

- chemical reaction
- evaporation of solute (if it is a liquid)
- volatilization of solute (if it is a gas)
- crystallization of solute (if solution becomes oversaturated) due to the change in solubility, which in turn depends on temperature and/or pressure.

The amount of solvent may change due to the evaporation.

If concentration is expressed as amount of solute per volume unit, it may change due to the volume change. The solvent volume depends on temperature, i.e. when temperature decreases the volume decreases and as a result concentration increases and vice versa.