



Lab7/ Determination of solubility product constant of slightly soluble salt





Solubility

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➤ Define Solubility?

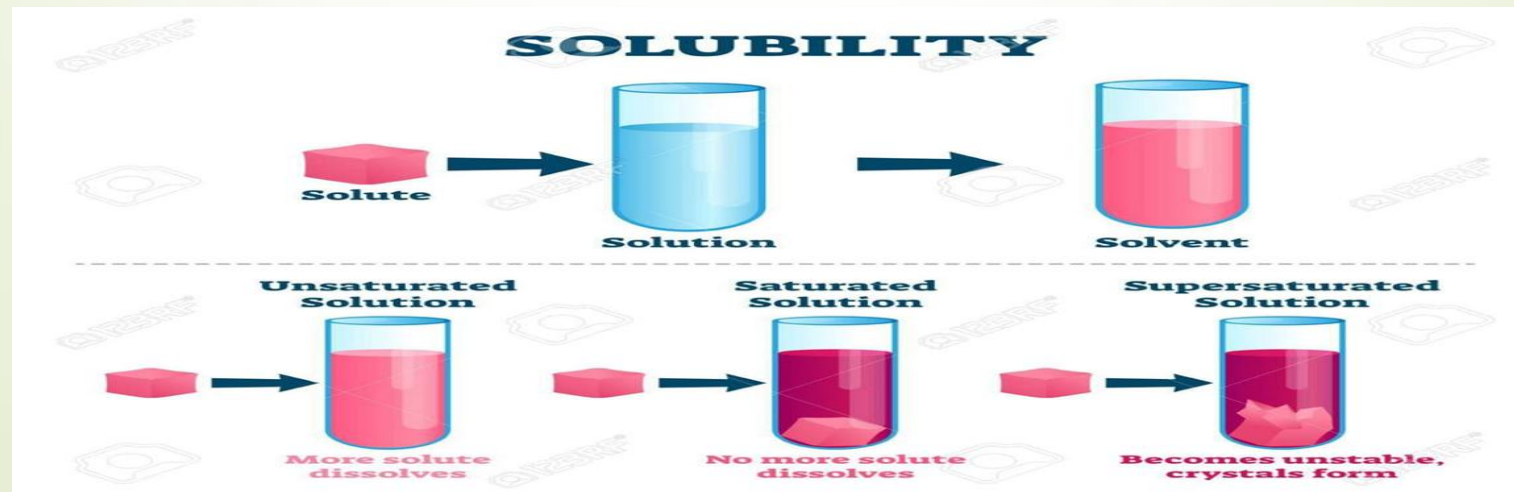
Solubility

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- ▶ Solubility: the maximum amount of a substance that will dissolve in a given amount of solvent at a specified temperature

Saturation and Unsaturation

- Can we prepare a saturated solution from 1 g of solute with 1000 L of solvent?
- **Saturated solution** is a solution that contains the maximum amount of solute that is capable of being dissolved.
- **Unsaturated solution** is a solution that contains less than the maximum amount of solute that is capable of being dissolved.



Solubility

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- ▶ Can every compound dissolve, even in small extent?

- All the compounds are soluble in at least small extent

Solubility product constant

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- Solubility product constant: The solubility product constant, K_{sp} , is the equilibrium constant for a solid substance dissolving in an aqueous solution. It represents the level at which a solute dissolves in solution.
- The more soluble a substance is, the higher the K_{sp} value it has.
- Consider the general dissolution reaction below (in aqueous solutions):
- $aA(s) \rightleftharpoons cC(aq) + dD(aq)$

$$K_{sp} = [C]^c [D]^d$$

Solubility product constant

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Q/ the solubility of silver chloride, AgCl, is 1.9×10^{-3} g/L. Calculate its K_{sp} ?

Solubility product constant

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- What is the molar solubility of PbSO_4 salt if you know that the solubility product constant for this salt is 1.6×10^{-8} ?



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