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ملخص المحاضرة الأولى

QUESTION	ANSWER
What are precipitimetric titrations?	They are titrations based on determining some compounds or ions by forming insoluble salts (precipitate).
What conditions are required for quantitative application?	There action should be **rapid**, and the precipitate must be **practically insoluble** (KSP = 10 ^-10 or lower).
What is solubility?	The maximum amount of solute can dissolve in a known quantity of solvent at a certain temperature.
What is the solubility product constant (Ksp)?	It is the product of the molar concentrations of the ions of a sparingly soluble salt, each raised to the power of its stoichiometric coefficient. **KSP of AnBm = [A+m]n [B-n]m**
When the soluble salts will precipitate?	when the product of the multiplication of their ions' molar concentration in solution, each raised to the power of the number of ions produced (the ionic product)
How to calculate KSP from solubility?	**a.** Calculate **Molar solubility = Solubility/M. Wt.** **b.** Write a balanced equation for the ionization or dissociation of the salt Then calculate **KSP = [A+m]n [B-n]m**
EX.1	Calculate the molar solubility of silver sulfide in pure water. (KSp of silver sulfide = 6x10-50) solution **a. Ag2S ⇄ 2Ag+ + S-2** A mole ⇄ 2A + A KSp of silver sulfide = [2A]2 [A] 6x10-50 = 4A3 A= 24.66x10-22 Molar.
EX.2	If the solubility of AgCl is 0.0015 g/L what is the solubility product constant (KSP) of AgCl? (143.0 is the M.W. of AgCl) solution **a.(Molar solubility) = Solubility/M. Wt.** 0.0015/143.0 = 1.05x10-5Molar **b. AgCl⟶ Ag+ +Cl-** Ksp of AgCl = [Ag+] [Cl-] and [AgCl] = [Ag+] = [Cl-]

PART ONE OF THE LECTURE

	Ksp of AgCl = (1.05x10-5) (1.05x10-5) = 1.1x 0-10 **Constant rule:-** **Ksp of AB = S2** (S = molar solubility)