

Topic 6J - Precipitation

Precipitation

Dissolution occurs when $Q_{sp} < K_{sp}$

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Dissolving precipitates:



Addition of acid (H_3O^+) causes a decrease in $[\text{OH}^-]$, thus causing more Fe(OH)_3 to dissolve.



Addition of acid causes a decrease in $[\text{CO}_3^{2-}]$, due to evolution of CO_2 , thus driving the equilibrium to the right and causing more CaCO_3 to dissolve:



(This process is responsible for the effect of acid rain in causing the deterioration of limestone structures.)

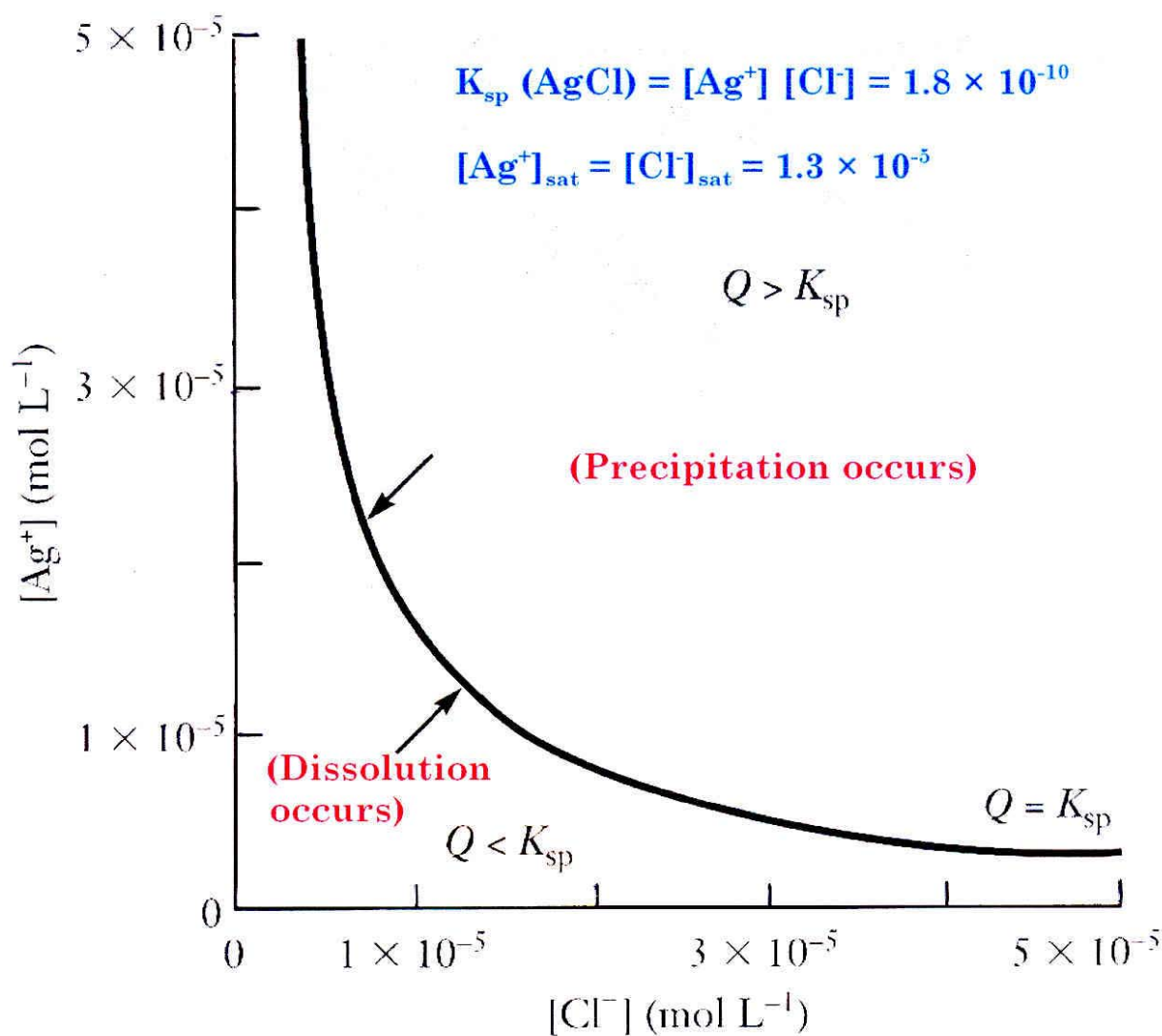


FIGURE 11.6 Some solid silver chloride is in contact with a solution containing $\text{Ag}^+(aq)$ and $\text{Cl}^-(aq)$ ions. If a solubility equilibrium exists, then the product Q of the concentrations of the ions $[\text{Ag}^+] \times [\text{Cl}^-]$ is a constant, K_{sp} (curved line). When Q exceeds K_{sp} , solid silver chloride tends to precipitate until equilibrium is attained. When Q is less than K_{sp} , additional solid tends to dissolve. If no solid is present, Q remains less than K_{sp} .

