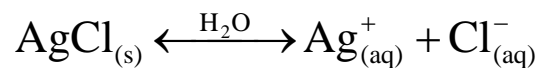


Solubility Products



Precipitates

- Precipitates from double-displacement reactions are not really insoluble but slightly soluble.
- AgCl is said to be insoluble, but it really undergoes both dissociation and precipitation



Solubility Product Constant

- We can calculate a solubility constant for these reactions similar to an equilibrium constant
- Remembering that we don't include solids in the expression...



- Like equilibrium constants, solubility product constants are specific for only one reaction at a particular temperature
- The higher the K_{sp} value, the higher the solubility of the salt
- Some examples
 - calcium phosphate, $K_{sp}=1.2 \times 10^{-26}$
 - silver bromide, $K_{sp}=7.7 \times 10^{-13}$
 - barium fluoride, $K_{sp}=1.7 \times 10^{-6}$
 - In these examples, barium fluoride has the highest solubility (highest K_{sp} value)