

# Solubility Product

Chemistry

K<sub>sp</sub>, and predicting whether a precipitate forms.

**The solubility product is the equilibrium constant for a sparingly soluble salt dissolving.**

$$K_{sp} = [A^{m+}]^x [B^{n-}]^y$$

AgCl

$$K_{sp} = [Ag^+][Cl^-]$$

Ion product > K<sub>sp</sub>

**Precipitate forms**

Ion product < K<sub>sp</sub>

**Stays dissolved**

## THE COMMON MISTAKE

✗ Ignoring the common ion effect

✓ Accounting for ions already present

Adding a common ion shifts the equilibrium back and reduces solubility, sometimes dramatically.

The common ion effect is why silver chloride is less soluble in sodium chloride solution than in pure water.