# Answer on Question #55913 - Chemistry - General chemistry

Question:

What is the principle behind adding excess $BaCl_2$ to ensure complete precipitation of the SO_4^{2-}?

Answer:

$BaSO_4$ is not totally insoluble in water. Due to chemical dissociation process, there's still some amount of dissolved anions and cations is presented in the solution. The chemical equilibrium is described below:
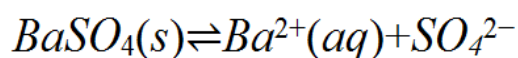
$$BaSO_4(s) \rightleftharpoons Ba^{2+}(aq) + SO_4^{2-}$$

The chemical equilibrium is almost shifted to the left, and the major part of $BaSO_4$ is in the solid state. Anyway, the equilibrium exists and we can write a solubility product constant, which is written K_{sp}:

$$K_{sp} = [Ba^{2+}(aq)][SO_4^{2-}(aq)]$$

By adding excess of Ba^{2+} we ensure that the chemical equilibrium is shifted to the left side, so all SO_4^{2-} anions are in the solid state, that means that they don't remain in the solution.