Answer on Question #70773 - Chemistry - General Chemistry

Question : What is the molecular balanced equation for the preparation of copper (II) hydroxide?

Solution: A molecular equation is sometimes simply called a balanced equation. In a molecular equation all ionic compounds and acids are represented as neutral compounds using the molecular formula. The state of each substance is indicated in parentheses after the formula.

Copper(II) hydroxide can be made by reacting copper sulfate with sodium hydroxide. Potassium hydroxide can be used, but it is more expensive. It can also be made by electrolyzing a solution of sodium bicarbonate with a copper anode [1]. There is balanced reaction equation :

$CuSO_4$ (aq) + 2NaOH (aq) = $Cu(OH)_2$ ↓(s) + Na_2SO_4 (aq) (molecular form)

In additional, there are preparation reaction in ionic form :

Cu^{2+} (aq) + SO_4^{2-}(aq) + 2Na^+ (aq)+ 2OH^-(aq) = $Cu(OH)_2$ (s)+ 2Na^+ (aq)+ SO_4^{2-} (aq) (complete ionic equation)
Cu^{2+} (aq)+ 2OH^- (aq)= $Cu(OH)_2$ (s) (net ionic equation)

Answer: $CuSO_4$ (aq) + 2NaOH (aq) = $Cu(OH)_2$ ↓(s) + Na_2SO_4 (aq)

Sources:

1. https://simple.wikipedia.org/wiki/Copper(II)_hydroxide