Answer on Question #55296 - Chemistry – General Chemistry

Question

Write a net ionic equation for the overall reaction that occurs when aqueous solutions of hydrosulfuric acid (H₂S) and sodium hydroxide are combined. Include states.

Answer:

Reaction between hydrosulfuric acid (H₂S) and sodium hydroxide (molecular equation):

$$H_2S(aq) + 2NaOH(aq) \rightarrow Na_2S(aq) + 2H_2O(l)$$

Sodium hydroxide and sodium sulfide produced are an electrolytes, and in water solution they form ions. So, the full ionic equation is:

 $H_2S(aq) + 2Na^+(aq) + 20H^-(aq) \leftrightarrow 2Na^+(aq) + S^{2-}(aq) + 2H_2O(l)$

The net ionic equation is:

 $H_2S(aq) + 20H^-(aq) \leftrightarrow S^{2-}(aq) + 2H_2O(l)$

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