Answer on the question #50447, Chemistry, Other

Question:

Why hydrogen ions are NEVER found in an aqueous solution?

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HCN(aq) + SO4-2(aq) HSO4-(aq) + CN -(aq)
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What is the Bronsted - Lowry acid in this equation? What is the Bronsted - Lowry base in this equation? What is the conjugate acid in this equation? What is the conjugate base in this equation?

Answer:

1) The hydrogen ions are never found in the solutions because they always exist in the H3O+ form. This originates from the true water autoionisation reaction:

$$H_2O + H_2O \rightleftharpoons H_3O^+ + OH^-$$

2)

$$HCN + SO_{4(aq)}^{2-} \rightleftharpoons HSO_{4(aq)}^{-} + CN_{(aq)}^{-}$$

the Bronsted - Lowry acid is the HCN, because it donates hydrogen ion;

the Bronsted - Lowry base is $SO_{4(aq)}^{2-}$, because it accepts the hydrogen ion;

the conjugate acid is the $HSO_{4(aq)}^{-}$, the conjugate base $-CN_{(aq)}^{-}$.

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