A species that has the potential to act both as an acid and as a base according to Brønsted-Lowry Theory is said to be amphoteric.

eg: Water

The water molecule has hydrogen atoms and, therefore, could act as an acid in a reaction. The oxygen atom in the water molecule has two lone pairs, one of which could be used to form a bond with a \( \text{H}^+ \), and, therefore, the water molecule could act as a base in a reaction. Since water has the potential to act both as an acid and as a base, water is amphoteric.

\[
\text{H}_2\text{O} + \text{H}^+ \rightarrow \text{H}_2\text{O}^+ + \text{H}^+
\]

accepts a \( \text{H}^+ \); base

\[
\text{H} - \begin{array}{c} \text{O} \end{array} - \text{H} + \text{NH}_3 \rightarrow \text{H} - \begin{array}{c} \text{O} \end{array} + \text{NH}_4^+
\]

donates a \( \text{H}^+ \); acid

Contributors and Attributions

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