

History

Explore the discoverer's biography, including general facts about his life and anecdotes regarding how he made this particular discovery. Also see other significant scientific discoveries built largely on this concept and other real-world applications in history that may not still be relevant.

Discoverer/Developer

Svante Arrhenius (1859-1927) was born in Vik, Sweden. He taught himself to read at age three and learned arithmetic at a young age from his father's accounting. Electrolytic conductivity was the subject of his dissertation, which was, in effect, given a grade of D by the professors reviewing it. However, this work was the basis of his Nobel Prize in Chemistry. Arrhenius became a professor at Stockholm University College. In 1884, he postulated the definition of acids and bases that has come to take his name. Five years later he proposed the idea of activation energy, that for a reaction to take place the molecules have to be given a certain amount of energy. Other topics on which Arrhenius did research included astronomy and the carbon dioxide level in Earth's atmosphere. Arrhenius was the first to theorize that carbon dioxide levels in the atmosphere could change the temperature by the greenhouse effect. However, he saw this completely as a beneficial phenomenon, because a warmer world would have higher plant yields according to him. Arrhenius was on the Nobel Physics Committee, where he advocated for people he liked to receive a Nobel Prize and his enemies to be denied one. Arrhenius himself won the Nobel Prize in Chemistry in 1903.

Concept Definition

Study the primary definition of this concept, broken into general, basic, and advanced English definitions. Also see the mathematical definition and any requisite background information, such as conditions or previous definitions.

Basic

An Arrhenius acid dissociates to form H_3O^+ (hydronium ions) when dissolved in water, while an Arrhenius base dissociates to form OH^- (hydroxide ions) when dissolved in water.

Advanced

An Arrhenius acid dissociates to form H_3O^+ (hydronium ions) when dissolved in water, while an Arrhenius base dissociates to form OH^- (hydroxide ions) when dissolved in water. Many substances that are considered acids and bases are excluded when this definition is used to determine acids and bases.

Vocabulary

Learn important vocabulary for this concept, including words that might appear in assessments (tests, quizzes, homework, etc.) that indicate the use of this concept.

Important Vocabulary	Term	Context
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hydronium ion

- Water dissociates into hydroxide and hydronium ions.

hydroxide ion

- Water dissociates into hydroxide and hydronium ions.

pH

- Lemon juice has a pH of 2.

Classroom Demonstrations

Investigate lab procedures suitable for live classroom demonstrations or guided student exploration.

Demos **Colorful Electrolysis -- Decomposition of Water**

Works Cited

Review the works cited to write the researched parts of this page, such as the discoverer's biographical information and other areas.

Works Cited

www.nobelprize.org/nobel_prizes/chemistry/laureates/1903/arrhenius-bio.html