

Acids and Bases, Introduction

I. Electrolyte

- A. Solute that dissolves in water and dissociates into ions to yield a solution that conducts electricity. (water soluble salts like NaCl)
- B. A non-electrolyte is a solute that does not form ions in water and does not conduct electricity. (sugars, alcohols)
- C. A weak electrolyte only partially dissociates into ions when dissolved in water. (vinegar)

II. Arrhenius definitions of acid and base (late 1800's, still useful today)

A. **Acid:** a substance that dissociates in water to form an H^+ ion.

(Today we know that H^+ does not exist in water. Instead H_3O^+ (the hydronium ion) is formed.)

B. **Base:** a substance that dissociates in water to form an OH^- ion.

III. Acids

A. Common acids include:

HCl	HBr
HNO ₃	HI
H ₂ SO ₄	H ₃ PO ₄
H ₂ CO ₃	HF

B. Strong acids are strong electrolytes. Do they dissociate partially or completely in water?

Examples of strong acids are:

C. Properties of acids

Taste sour, turn litmus red, lower the pH

IV. Bases

A. Some common bases:

NaOH, LiOH, KOH, Ca(OH)₂, Mg(OH)₂, and NH₃

B. Properties of bases

Taste bitter, slippery, turn litmus blue, raise the pH

Acid + Base → Salt + Water

HCl + NaOH → NaCl + H₂O