

# **Arrhenius Acid-Base Concept**

Svante Arrhenius, 1884





## Strong and Weak Acids and Bases

1. The following common acids are strong:  $\text{HCl}$ ,  $\text{HBr}$ ,  $\text{HI}$ ,  $\text{HNO}_3$ ,  $\text{HClO}_4$ ,  $\text{H}_2\text{SO}_4$

The following are some less common acids that are also strong:  $\text{HClO}_3$ ,  $\text{HBrO}_3$ ,  $\text{HIO}_3$ ,  $\text{H}_2\text{SeO}_4$

- K Assume all other acids are weak unless told otherwise.

Some weak acids:  $\text{HF}$ ,  $\text{HNO}_2$ ,  $\text{HClO}_2$ ,  $[\text{H}_2\text{SO}_3] = \text{SO}_2 + \text{H}_2\text{O}$ ,  $\text{HC}_2\text{H}_3$



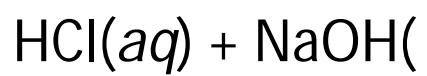
# Metal Oxides as Bases

# Neutralization

O Neutralization is the fundamental reaction

## Three Ways of Writing a Neutralization

Molecular equation:





## Writing Neutralization Equations for Weak Acids





## Strong, Weak, or Non-Electrolyte?

2. Molecular compounds may be non-electrolytes, weak electrolytes, or strong electrolytes, depending on whether they dissolve without ion formation, a little ion formation, or mostly ion formation, respectively.

Examples:

Compound	Type	Soln Species
sucrose	nonelectrolyte	molecules
CH <sub>3</sub> COOH	weak electrolyte	molecules + ions
HCl	strong electrolyte	ions

## **Strong, Weak, or Non-Electrolyte?**

3. Strong acids and strong bases are strong

