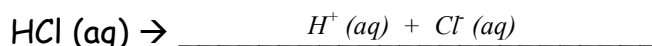
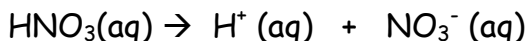


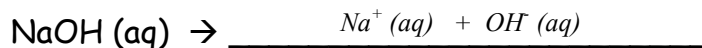
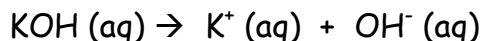
What are Acids, Bases, and Salts?

The Swedish chemist Svante Arrhenius introduced the theory of ionization and used this theory to explain much about the behavior of acids and bases.

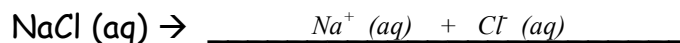
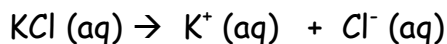
- ◆ An Arrhenius acid is defined as any compound that dissociates in aqueous solution to form H^+ ions.



- ◆ An Arrhenius base is defined as any compound that dissociates in aqueous solution to form OH^- ions.



- ◆ Salts are compounds that dissociate in aqueous solution releasing neither H^+ ions nor OH^- ions.



Using the *Arrhenius definition*, classify the following examples as acids, bases, or salts:

HBr	<u> acid </u>	KCl	<u> salt </u>
Mg(OH) ₂	<u> base </u>	H ₃ PO ₄	<u> acid </u>
HCl	<u> acid </u>	HClO	<u> acid </u>
KNO ₂	<u> salt </u>	Al(OH) ₃	<u> base </u>
HFO ₄	<u> acid </u>	KC ₂ H ₃ O ₂	<u> salt </u>
Ba(OH) ₂	<u> base </u>	NaCl	<u> salt </u>

Acids and bases can also be identified using an operational definition. Operational definitions are simply a list of properties.

ACIDS:

- ◆ A sour taste is a characteristic property of all acids in aqueous solution.
- ◆ Acids react with some metals to produce hydrogen gas.
- ◆ Because aqueous acid solutions conduct electricity, they are identified as electrolytes.
- ◆ Acids react with bases to produce a salt and water.
- ◆ Acids turn indicators different colors.

BASES:

- ◆ Bases tend to taste bitter and feel slippery.
- ◆ Like acids, aqueous basic solutions conduct electricity, and are identified as electrolytes.
- ◆ Bases react with acids to produce a salt and water.
- ◆ Bases turn indicators different colors.

Naming Acids, Bases, and Salts

Since bases and salts are ionic compounds, they are named in the usual way:

KNO_3 potassium nitrate

NH_4OH ammonium hydroxide

KNO_2 potassium nitrite

$\text{Al}(\text{OH})_3$ aluminum hydroxide

- **Binary acids** consist of two elements, the first being hydrogen.

Binary acids are named using the format:

hydro_(root word of second element)_ic acid

- **Ternary acids** consist of three elements. Do **NOT** use a prefix. Simply change the ending of the polyatomic ion's name and add the word "acid":

-ate becomes -ic and -ite becomes -ous

Name the following acids:

H_3PO_3 phosphorous acid

$\text{HC}_2\text{H}_3\text{O}_2$ acetic acid

H_2CO_3 carbonic acid

HClO_2 chlorous acid

HF hydrofluoric acid

H_2SO_3 sulfurous acid