

Notes #7/Aqueous Chem C/Acids and Bases/AP Chemistry

I. Properties of Acids and Bases

A. ACIDS: substances that ionize in water to produce_____.

-Properties of Acids:

B. BASES: substances that ionize in water to produce_____.

-Properties of Bases:

-Strong bases:_____

-Weak Bases? Only one really common inorganic example:_____

- How does NH_3 ionize in water to produce OH^- ? (Be sure that you know this!)

II. Acid/Base Neutralization Reactions

A. These are easy! They are just another type of double displacement reaction, but water is formed (not precipitate).

B. Predictable A/B neutralization format: **Acid + Base-----> Water + Salt**

**salt = any ionic compound made up of ions other than_____

Example 1: $\text{HCl(aq)} + \text{NaOH(aq)} \text{----->}$

Ionic:

Net ionic:

Example 2: $\text{H}_2\text{SO}_4\text{(aq)} + \text{NaOH(aq)} \text{----->}$

Ionic:

Net ionic:

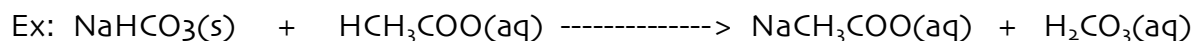
What can you say about the net ionic equation for almost any Acid /Base neutralization???

Uh-Oh! . . . Hold on to your shorts! . . . Here comes a tricky one!!:)

$\text{HNO}_3\text{(aq)} + \text{NH}_3\text{(aq)} \text{----->}$

III. Double Displacement Reactions where GASES are formed.

1. **CO₂ Formation:** Any carbonate or bicarbonate + an acid ----->



Ex: Hydrochloric acid and calcium carbonate react to yield?

2. **NH₃ Formation:** Any ammonium salt + a strong base ----->

Ex: Ammonium chloride and barium hydroxide react to yield?

3. **SO₂ Formation:** Any sulfite salt + an acid ----->

Ex: Sodium sulfite and an excess amount of hydrochloric acid react to yield?

The Bottom Line On The Matter Is This.... ANY time H₂CO₃, NH₄OH, or H₂SO₃ are formed as a product in a reaction, **YOU must **KNOW** that these chemicals are unstable and they will decompose to form the appropriate gas! (CO₂, NH₃, and SO₂ respectively)**

Additional practice: Write the molecular and net ionic equation for the following:

1. Barium hydroxide and sulfuric acid react to yield?

2. Ammonia gas is bubbled into a solution of hydrobromic acid to yield?

3. Potassium sulfite and sulfuric acid react to yield?

4. Ammonium nitrate reacts with barium hydroxide to produce?