

## Announcements

- Read Chapter 3, Wiley Chapter 3 problems due Wed., Sept. 26<sup>th</sup> @ 11AM
- Old exams posted on web
- Clarification on re-do/Conceptual problems
- Study groups

## Today's topics

- Finish naming
- Balancing reactions
- Chapter 3 - Measurements

## Poly atomic ions

- Memorize Table 2.5 in text (flashcards)
  - ion elemental ratios
  - charge of ion
  - spelling of name
- Very handy
  - determining charges
  - balancing formulas and reactions

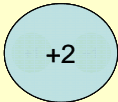
## Poly atomic ions have constant charges

- Use them for determining unknown transition metal charges
- Examples:
  - FePO<sub>4</sub>      **Iron (III)phosphate**
  - Cu<sub>2</sub>SO<sub>4</sub>      **Copper(I)sulfate**
  - In(NO<sub>3</sub>)<sub>3</sub>      **Indium nitrate**      [Note: (III) is not needed. In only has 3+]
  - (NH<sub>4</sub>)<sub>2</sub>MoO<sub>4</sub>•2H<sub>2</sub>O  
**Ammonium molybdate dihydrate**

## Counting atoms

- Obvious
  - CO      2 atoms
  - CO<sub>2</sub>      3 atoms
  - Al Cl<sub>3</sub>      4 atoms
- Not much harder:
  - Ca(OH)<sub>2</sub>      Ca O H  
                                 1 + 2 + 2 = 5 atoms
  - (NH<sub>4</sub>)<sub>2</sub>MoO<sub>4</sub>•2H<sub>2</sub>O      N H Mo O H O  
   2 + 8 + 1 + 4 + 4 + 2 = 21 atoms

## Special Note:

- Two errors on flash cards:
    - Bisulfite ion HSO<sub>3</sub><sup>-</sup>
    - Oxalate ion C<sub>2</sub>O<sub>4</sub><sup>2-</sup>
  - ion that should be included on flashcards is the mercury (I) ion.
  - Hg<sub>2</sub><sup>2+</sup>
- 
- Leave it in pairs
    - Correct: (Hg<sub>2</sub>)<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub>
    - Incorrect: Hg<sub>6</sub>(PO<sub>4</sub>)<sub>2</sub> or Hg<sub>3</sub>PO<sub>4</sub>

## Much simplified version:

Does it contain polyatomic ion or metal?

### Yes – ionic compound

- Name the cation
- Name the anion
  - drop the elements end
  - add -ide ending
- State the charge if needed

### No – molecular compound

- Count (in Greek) both elements
- Name both elements
- Change ending to -ide

## Chapter 3

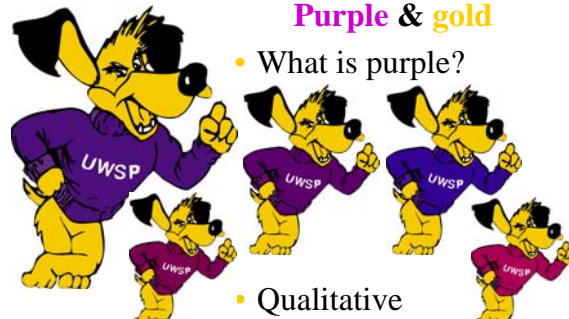
- Making measurements
- Units
- Observation certainty
- Are significant figures ...really significant?
- UAMF
- Practice the math using density and find out that math and density is a good tool for real life

### Qualitative vs. quantitative observations

- What are UW-Stevens Point's team colors?

**Purple & gold**

- What is purple?



- Qualitative

### Qualitative vs. quantitative observations

- What are UW-Stevens Point's team colors?

**Purple & gold**

- What is Stevie wearing?

- I think it is a sweater

- What are the letters?

U \* W \* S \* P

- How many letters?

4



### Qualitative vs. quantitative observations

- Who, What, Why, Where, When, How much?

- Qualitative

- Who, What, Why?

- What chemical is that made from → Qualitative Analysis

- Quantitative

- How much?

- Mass, length, temperature, time, how many → Quantitative Analysis

- Could be either?

- Where, when?

- General → over there or Specific → 3.5 meters past the start line

### My past life



### If we are going to do something useful we need units!

The 4 C's

- Clarity

- Color

- Cut

- Carats



"Carat" comes from "Carob"