Naming

Binary Covalent & Acids

Molecules

- _____– two or more atoms covalently bound together
- _____– two of the same atom bound together

Diatomic Molecules

- Br I N Cl H O F or the Magnificent 7
- These atoms never exist alone.
- They always come in pairs
- For example:
  - Br → Br_2
  - I → I_2
  - N → N_2
  - Cl → Cl_2
  - H → H_2
  - O → O_2
  - F → F_2

Binary Molecular Compounds

- Binary Compounds consist of 2 _____
- Before you can name binary covalent compounds, you MUST know the prefixes!

Prefixes

• Mono	• 1
• Di	• 2
• Tri	• 3
• Tetra	• 4
• Penta	• 5
• Hexa	• 6
• Hepta	• 7
• Octa	• 8
• Nona	• 9
• Deca	• 10

Rules for naming Binary Covalent Compounds

- Name the _____ for the number of atoms of the first element
- Then name the first _____
- Name the _____ for the number of atoms of the second element
- Than name the _____ of the second element with the ending - _____

Note…

- No charges are used in Binary Covalent Compounds
- If the 1st prefix is mono…. _____ !
- When the prefix ends in an o or a, and the name of the element begins with a vowel, the o or a is often dropped

Examples

- What is the name of N_2O_4?

More examples

- Name SO_2

More examples

- Write the formula for dichlorine monoxide

More examples

- Write the formula for disulfur dichloride

Acids

- Acids can be recognized because the start with _____
- Examples
  - HCl
  - H_2SO_4
  - HI

Acids

- Acids are in _____ solution (aq)
- For the purposes of this class, we will assume that if it begins with H, we will name it according to the rules of naming acids
- If the HX were to be in a gas form, it would be named hydrogen x-ide

Rule #1 - naming acids

- If the anion ends in –*ide*, the acid will be named…
- Hydro (root) – ic acid
- This is usually for H plus one element

For example

- HCl
- HI
- H_2S

Rule #2 – naming acids

- If you have an H plus an anion ending in –*ate*, the acid will be named…
- (root) – ic acid

Examples

- H_2SO_4
- HNO_3
- H_3PO_4

Rule # 3 – naming acids

- If you have an H plus an anion ending in *–ite*, the acid will be named…
- (root) – ous acid

Examples

- H_2SO_3
- HNO_2
- H_3PO_3

Remember…

ate → ic

ite - ous

Writing formulas for acids

- When writing formulas for acids you MUST look at the charges and bring them down!

Examples

- HBr
- $HClO_3$

More examples

- H_2SO_3
- H_2CO_3
- HF
- Nitrous acid
- Perchloric acid
- Iodic acid
- Phosphorous acid

Mixed examples (remember to figure out what type of compound it is 1st!)

- $KClO_2$
- CO_2
- H_2SO_4
- NH_4Br
- $CuCO_3$
- Fe_2O_3
- HClO

More Mixed Examples

- Carbon tetrachloride
- Phosphorous pentachloride
- Aluminum oxide
- Copper (II) nitrate
- Chlorous acid
- Hydrophosphoric acid
- Iron (III) hydroxide