Naming Binary Covalent Compounds

Aim

- name compounds formed from nonmetals

Notes

Identifying the metal

- ★ Binary compounds consist of two elements – a metal and a nonmetal – but
- ★ Binary compounds can also form between two nonmetals by covalent bonding
  - ☆ nonmetals can behave like metals and have positive oxidation states
  - ☆ In compounds between two nonmetals, the element with the lower electronegativity behaves as the metal

Naming binary covalent compounds

- ★ the metal is written first in the name and the formula
  - ☆ the name of the metal is the same as the name of the element (S = sulfur, S^{+4} = sulfur)
  - ☆ if there is more than one atom of the metal, the number of atoms is indicated with a prefix
- ★ the nonmetal is written last in the name and formula
  - ☆ the name of the nonmetal is the same as the name of the element minus the final syllable or two, plus IDE (O = oxygen, O^{-2} = oxide)
  - ☆ the number of nonmetal atoms is indicated with a prefix (even when there is only one)
- ★ examples
  - ☆ CO - carbon monoxide
  - ☆ CO_2 - carbon dioxide
  - ☆ N_2O_5 - dinitrogen pentoxide (*NOTE:* the "a" in penta is dropped to avoid putting two vowels together)
  - ☆ SO_3 - sulfur trioxide
  - ☆ $SiCl_4$ - silicon tetrachloride

Number of Atoms	Prefix
1	mono
2	di
3	tri
4	tetra
5	penta
6	hexa
7	hepta
8	octa
9	nona
10	deca

Answer the questions below by circling the number of the correct response

1. The formula for sulfur hexafluoride is (1) SHF, (2) SF, (3) SF_6, (4) S_6F.

2. The IUPAC name for N_2O_3 is (1) dinitrogen trioxide, (2) nitrogen oxide, (3) nitrogen trioxide, (4) dinitrogen oxide.

3. The prefix used to show there are four atoms of an element in a binary covalent compound is (1) quadra, (2) recta, (3) hepta, (4) tetra.

4. Which of the following is a binary covalent compound? (1) Na_2O (2) P_2S_5 (3) Hg_2Cl_2 (4) KI

5. Name $SiBr_4$ _____