### Ionic (Cation-Anion)

**Rule:**
Name of cation + name of anion (word ion dropped)

**Examples:**
- NaCl  sodium chloride
- MgCl₂  magnesium chloride
- Fe₃N₂  iron(II) nitride
- Na₂CO₃  sodium carbonate
- CaH₂  calcium hydride
- Ca(NO₃)₂  calcium nitrate

**Comment:**
The name does not indicate the numbers of cations and anions because there is only one possibility for the ions to combine to form a compound.

### Covalent (Nonmetals Only)

**Rule:**
- a. Less electronegative element first (exceptions: when one of the elements is hydrogen).
- b. Number of atoms of each element is specified by Greek prefixes.
- c. Prefix mono at the beginning is dropped.

**Prefixes:**
- 1= mono 6= hexa
- 2= di 7= hepta
- 3= tri 8= octa
- 4=tetra 9= nona
- 5=penta 10= deca

**Examples:**
- N₂O₄  dinitrogen tetroxide
- CO  carbon monoxide
- CO₂  Carbon dioxide
- N₂O  dinitrogen monoxide

**Comment:**
- Tetraoxide becomes tetroxide, monoxide becomes monoxide, etc. H-containing compounds do not follow a rule concerning the order in which the elements are written and should be memorized (H₂O, NH₃, etc.)

### Compounds Containing Hydrogen

**H-Nonmetal**

**Rule 1:**
Without the presence of H₂O:
Hydrogen _ide

**Examples:**
- HCl  hydrogen chloride
- HF  hydrogen fluoride
- H₂S  hydrogen sulfide

**Rule 2**
When dissolved in H₂O:
Hydro_ic acid

**Examples:**
- HClO  hypochlorous acid
- HClO₂  chlorous acid
- HClO₃  chloric acid
- HClO₄  perchloric acid
- HNO₂  nitrous acid
- HNO₃  nitric acid
- H₂SO₃  sulfurous acid
- H₂SO₄  sulfuric acid
- H₃PO₄  phosphoric acid

**Rule 1:**
Without H₂O:
Cation + anion

**Examples:**
- Hydrogen hypo_ite
- Hydrogen _ite
- Hydrogen _ate
- Hydrogen per_ate

**Rule 2**
When dissolved in H₂O:
Hypo_ous acid
_ous acid
_ic acid
per_ic acid

**Examples:**
- HClO  hypochlorous acid
- HClO₂  chlorous acid
- HClO₃  chloric acid
- HClO₄  perchloric acid
- HNO₂  nitrous acid
- HNO₃  nitric acid
- H₂SO₃  sulfurous acid
- H₂SO₄  sulfuric acid
- H₃PO₄  phosphoric acid

**Comment:**
a. These H-containing compounds are named as if they were ionic compounds.
b. The (aq) in the formula of the acids is often omitted when it is obvious from the context that they are acids.

### H-Oxyanion

**Rule 1:**
Without H₂O:
Cation + anion

**Examples:**
- Hydrogen hypo_ite
- Hydrogen _ite
- Hydrogen _ate
- Hydrogen per_ate

**Rule 2**
When dissolved in H₂O:
Hypo_ous acid
_ous acid
_ic acid
per_ic acid

**Examples:**
- HClO  hypochlorous acid
- HClO₂  chlorous acid
- HClO₃  chloric acid
- HClO₄  perchloric acid
- HNO₂  nitrous acid
- HNO₃  nitric acid
- H₂SO₃  sulfurous acid
- H₂SO₄  sulfuric acid
- H₃PO₄  phosphoric acid

**Comment:**
a. These H-containing compounds are named as if they were ionic compounds.
b. The (aq) in the formula of the acids is often omitted when it is obvious from the context that they are acids.