

SIMPLIFIED RULES FOR NAMING

Rules for naming compounds:

Structure → Name

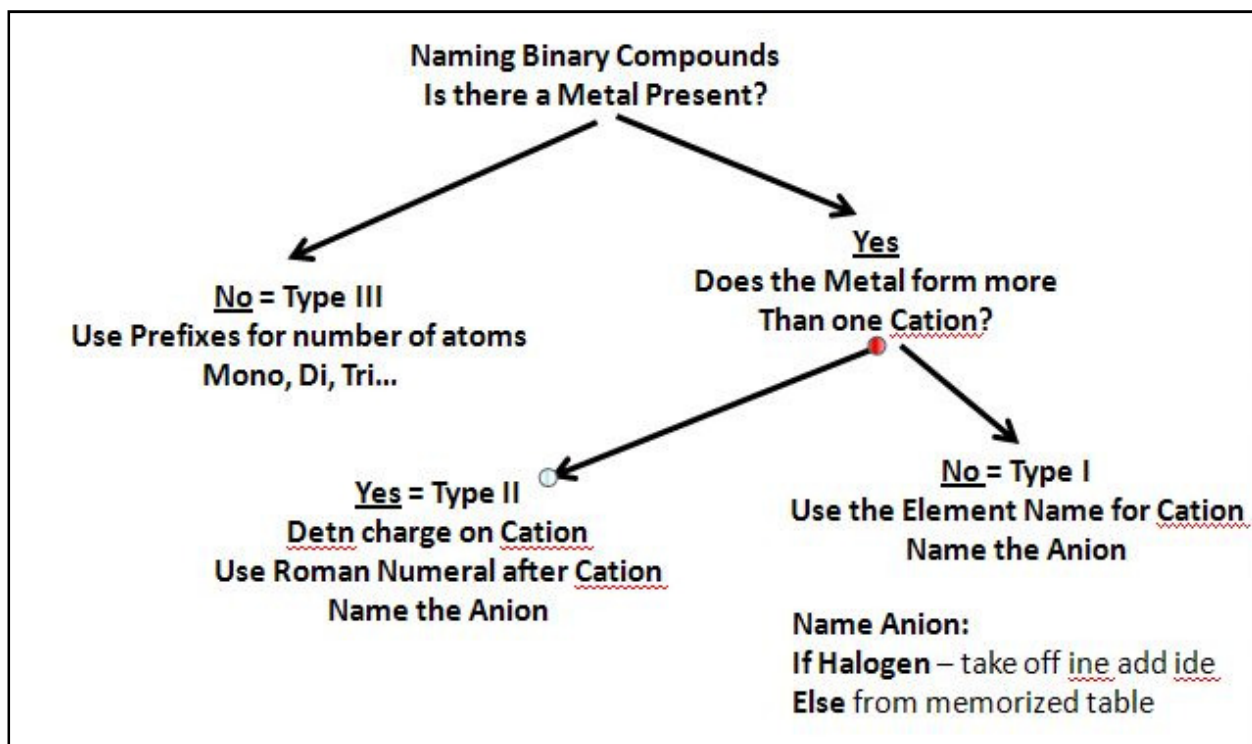
1. If it begins with an H, it's an acid, except for water. You need to memorize the common acids:

H₂SO₄	Sulfuric Acid	H₂O	Di-Hydrogen Oxide
HNO₃	Nitric Acid	H-OH	Hydrogen Hyrdoxide [always write like this]
HCl	Hydrochloric Acid		

2. What is the Cation [+], what is the name of the Cation element?

MgCl₂ Mg is the Cation and is Magnesium

3. Follow the rules below for naming.



Rules for naming compounds:

Name → Structure

1. Convert the Cation Name, the first name of the compound to a Chemical Symbol

Sodium → Na

Sodium Chloride NaCl

Sodium Carbonate Na₂CO₃

Iron (III) Carbonate Fe₂(CO₃)₃

2. Convert the Anion Name to a Chemical Symbol

Chloride → Cl

3. If the Anion is a Polyatomic, put down the correct formulae for it

Carbonate → CO₃

4. Put the charges for the Cation and Anion above the element

Na⁺¹ Cl⁻¹

Na⁺¹ CO₃⁻²

Fe⁺³ CO₃⁻²

These charges come from various locations. Locate the Cation on the Periodic Table

A. If the Cation is in Group I, the Alkaline Metals, its charge is +1

B. If the Cation is in Group II, the Alkaline Earth Metals, its charge is +2

C. If the Cation is in the middle of the table, you must memorize the charge.

D. If the Cation Name has a Roman Numeral after it, that is the charge Iron (III) → Fe⁺³

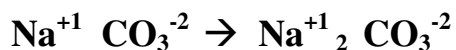
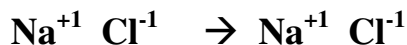
Locate the Anion on the Periodic Table.

1. If the Anion is in Group VII, the Halides, it has a -1 charge

2. Else you must memorize the charge and structure of the Poly Atomic

Now put in the correct number for the subscripts, or multipliers for the charge, so the compound has

a net zero charge:



Note as a shortcut [but don't tell anyone!]

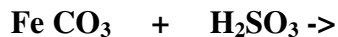
The +3 charge for the iron now becomes the 3 subscript for the carbonate

The -2 charge for the carbonate now becomes the 2 subscript for the iron.

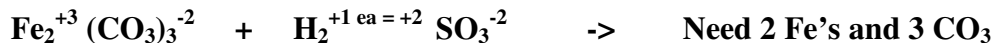
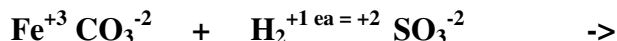
Rules for Writing and Balancing and Equation:

5.01 grams of Iron (III) Carbonate is reacted with xcs [Excess] Sulfurous Acid. What are the products and how much of each is formed?

1. Translate the English to Chemical REACTANTS using the above rules. Don't balance charges yet.



2. Balance the ions in each Reactant Compound so the net charge is zero



3. Determine the Products and write down the basic compounds. $\text{AB} + \text{CD} \rightarrow \text{AD} + \text{CB}$

Use the simple ionic exchange



4. Balance the ions in each Product Compound so the net charge is zero



5. Balance the equation [See Below] so there are equal number of each element on each side of the reaction arrow



6. With the known amount of starting compound / reactant, determine the molecular weight of that compound
7. Determine the molecular weight of each of the Product Compounds.
8. Set up the simple ratio of known amount of starting material to molecular weight equals x over the mw of each product and calculate the amount of each product. Don't forget to put in all the units!!
9. Write out the answers – the amount of each product in grams [or milligrams] corrected to the proper number of significant digits with the units.

Rules for Balancing an Equation



1. Take one Cation, the element on the left side, from one compound on the Left [Reactant] side of the equation. I'll take the Fe – see underscore above. I usually take the most unusual or heaviest element.
2. There are 2 Fe's on the left side. How many are on the right Side.
3. There are 2 Fe's on the right side. Attached to the Fe on the right is SO₃.
4. There are 3 SO₃ on the right side. How many are on the left side?
5. There is 1 SO₃ on the left side. So, make it 3 like on the right side:



6. Attached to the SO₃ on the left side is 3 * 2 H's. How many are on the right side.
7. There is 1 H₂ on the right side, so make it 3 * 2 H's



The equation is now balanced!

Rules for Conversions from one Unit to Another:

1. WRITE DOWN THE MAIN FORMULA: e.g. Density g/cm³ = Mass (g) / Volume (cm³)
2. Write down any derived formula for what is to be calculated; Volume (cm³) = Mass (g) / Density g/cm³
3. Put in your values with units: Volume (cm³) = 123.34 g / 1.00 cm³
4. Cancel out the units – be sure your answer is in the correct units
5. Do The Math Add / Subtract Multiply / Divide Do it to many digits
6. Calculate the number of Significant Digits that need to be in the answer, use proper rounding.
7. Put the answer in the correct Scientific Notation [Power of 10], if needed
8. **SHOW ALL MATH** ALL FORMULAE ALL UNITS AND ALL UNITS CANCELING.