

Naming Compounds Primer

Step 1: Draw a line after the first element or NH₄

Ex: Ca/Cl₂ K₂/Cr₂O₇ P/Cl₃ NH₄/NO₃ Na/HCO₃

First Element is a METAL or NH₄
Ionic Compounds: Ionic Bonding

First Element is Nonmetal or Semimetal
Molecular Compounds: Covalent Bonding

Step 2: How to Name

Metal ion Name followed by Nonmetal ion Name
 “Left of the Line followed by Right of the Line”

Center Atom (left element) followed by surrounding
 Atom(s) (right element)

Metal Ion Names

Naming Binary Covalent Cmpds

| | | | | |
|--|--|---|--|---------------------------------|
| Main Group Ions | Ion name is the element name | Front part of name is the element name | P/Cl ₃ S/O ₂ Si/I ₄ | Phosphorus Sulfur Silicon |
| Na ⁺¹ Ca ⁺² Al ⁺³ | Sodium ion Calcium ion Aluminum ion | Back part of name is the element root followed by <u>-ide</u> | P/Cl ₃ S/O ₂ Si/I ₄ | chloride oxide iodide |
| Transition Metal Ions | Charges are given in the name for some ions (Back of Class Periodic Table) | Covalently Bonded Compounds can make more than one formula: Ex: NO, NO ₂ , N ₂ O, N ₂ O ₃ , N ₂ O ₄ , N ₂ O ₅ | | |
| Cu ⁺¹ Cu ⁺² Fe ⁺² Fe ⁺³ Ag ⁺¹ | Copper (I) ion Copper (II) ion Iron (II) ion Iron (III) ion Silver ion (only has one charge) | Use Prefixes to Identify the Number of Atoms | | |
| Polyatomic Ions | There is only ONE + polyatomic | 1 | mono- | |
| NH ₄ ⁺¹ | Ammonium | 2 | di- | |
| Nonmetal Ion Names | | 3 | tri- | |
| One Type of Element after / | Root of the element name followed by -ide | 4 | tetra- | |
| Na/Cl Ca/Br ₂ Al/I ₃ | chloride bromide iodide | 5 | penta- | |
| Two or more Elements after / | Names can be found on back of class periodic table, usually end in -ite or -ate | 6 | hexa- | |
| Na/NO ₃ K/NO ₂ Na/HCO ₃ Ca/(OH) ₂ | nitrate nitrite hydrogen carbonate hydroxide (an -ide exception) | 7 | hepta- | |
| | | 8 | octa- | |
| | | 9 | nona- | |
| | | 10 | deca- | |
| | | <p>If the prefix ends with the first letter of the element, drop one of the letters:</p> <p>NO nitrogen monoxide, not monoxide</p> | | |

