



## ALCHEMIST METHOD (OUS-IC METHOD)

- Only used if a metal only has two common valences
- the Latin name of the metal is most often used
- if the **lower** of the valences is being used then the name of the metal is changed to end in "**ous**".
- if the **higher** of the valences is being used then the name of the metal is changed to end in "**ic**".
- you have to memorize the two valences for selected elements using the Periodic Table.

tin	Sn	2+ 4+	stannous stannic
lead	Pb	2+ 4+	plumbous plumbic
platinum	Pt	2+ 4+	platinous platinic
iron	Fe	2+ 3+	ferrous ferric
cobalt	Co	2+ 3+	cobaltous cobaltic
nickel	Ni	2+ 3+	nickelous nickelic
mercury	Hg	1+ 2+	mercurous mercuric
copper	Cu	1+ 2+	cuprous cupric
gold	Au	1+ 3+	aurous auric

**NOMENCLATURE OF BINARY IONIC COMPOUNDS**

1. Write names for the following compounds.

- |                            |       |                            |       |
|----------------------------|-------|----------------------------|-------|
| a) $\text{Li}_2\text{O}$   | _____ | b) $\text{MgF}_2$          | _____ |
| c) $\text{CuI}$            | _____ | d) $\text{Fe}_2\text{O}_3$ | _____ |
| e) $\text{Na}_2\text{S}$   | _____ | f) $\text{KBr}$            | _____ |
| g) $\text{HgCl}_2$         | _____ | h) $\text{SnBr}_2$         | _____ |
| i) $\text{Ag}_2\text{O}$   | _____ | j) $\text{ZnF}_2$          | _____ |
| k) $\text{CuO}$            | _____ | l) $\text{Sb}_2\text{S}_3$ | _____ |
| m) $\text{Ba}_3\text{P}_2$ | _____ | n) $\text{CaBr}_2$         | _____ |
| o) $\text{FeCl}_3$         | _____ | p) $\text{HgS}$            | _____ |
| q) $\text{Al}_2\text{O}_3$ | _____ | r) $\text{BaI}_2$          | _____ |
| s) $\text{PtO}_2$          | _____ | t) $\text{Cr}_2\text{O}_3$ | _____ |

2. Write formulas for the following compounds.

- |                      |                        |
|----------------------|------------------------|
| a) sodium fluoride   | b) silver sulfide      |
| c) tin(II) oxide     | d) copper(II) chloride |
| e) aluminum bromide  | f) zinc chloride       |
| g) iron(II) oxide    | h) iron(III) oxide     |
| i) zinc sulfide      | j) potassium oxide     |
| k) tin(IV) oxide     | l) mercury(I) iodide   |
| m) aluminum sulfide  | n) cadmium chloride    |
| o) lead(II) oxide    | p) antimony(V) oxide   |
| q) cesium sulfide    | r) sodium carbide      |
| s) gold(III) nitride | t) nickel(II) iodide   |

**NOMENCLATURE OF TERNARY IONIC COMPOUNDS**

1. Write names for the following compounds.

- |  |                                       |
|--|---------------------------------------|
| a) $\text{KNO}_3$ _____                                | b) $(\text{NH}_4)_3\text{PO}_4$ _____ |
| c) $\text{Mg}(\text{ClO}_3)_2$ _____                   | d) $\text{FeSO}_4$ _____              |
| e) $\text{Ca}(\text{C}_2\text{H}_3\text{O}_2)_2$ _____ | f) $\text{ZnSO}_3$ _____              |
| g) $\text{Ba}(\text{OH})_2$ _____                      | h) $\text{NaHCO}_3$ _____             |
| i) $\text{K}_2\text{Cr}_2\text{O}_7$ _____             | j) $\text{FeS}_2\text{O}_3$ _____     |
| k) $\text{NaBrO}_2$ _____                              | l) $\text{Rb}_3\text{PO}_3$ _____     |

2. Write formulas for the following compounds.

- |                            |                            |
|----------------------------|----------------------------|
| a) mercury(II) cyanide     | b) vanadium(III) carbonate |
| c) potassium hypochlorite  | d) copper(II) sulfate      |
| e) barium hydrogen sulfate | f) lithium hydroxide       |
| g) ammonium thiocyanate    | h) sodium acetate          |
| i) aluminum phosphite      | j) lead(II) periodate      |
| k) iron(III) nitrite       | l) magnesium bromite       |

**ALCHEMIST METHOD**

Write formulas for the following compounds named by an outdated method.

- |                      |                     |
|----------------------|---------------------|
| a) cuprous hydride   | b) plumbous sulfide |
| c) cobaltic chlorate | d) mercuric sulfate |
| e) aurous oxide      | f) ferrous fluoride |
| g) plumbic nitrate   | h) stannous acetate |
| i) cupric iodide     | j) ferric phosphite |
| k) mercurous nitride | l) auric bromide    |

Reminder: You never use this method to name compounds.