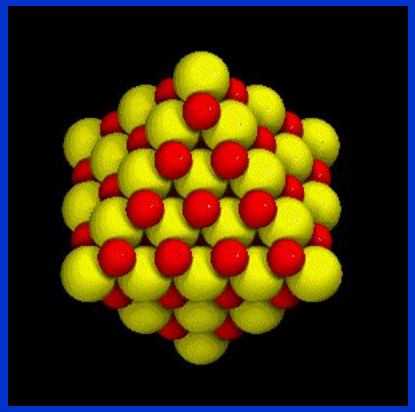
Chemistry Nomenclature



Binary Ionic Compounds

What are they made of?

Binary 2 elements

Ionic metal ion + non-metal ion

Example sodium, Na^+ metal
chlorine, Cl^- non-metal

Naming from Formula

1) Write name of metal
2) Write name of non-metal
3) Change non-metal suffix to IDE

NaCl

sodium chloride

Binary Compounds

Binary compounds that contain a metal of fixed oxidation number (group 1, group 2, Al, Zn, Ag, etc.), and a non-metal.

To name these compounds, give the name of metal followed by the name of the non-metal, with the ending replaced by the suffix –**ide**.

Examples:

LiF	lithium fluoride	(Li^{1+} F^{1-})
CaS	calcium sulfide	(Ca^{2+} S^{2-})
AlI_3	aluminum iodide	(Al^{3+} I^{1-})

Cations and Anions

Common Simple Cations and Anions

Cation	Name	Anion	Name*
H^{1+}	hydrogen	H^{1-}	hydride
Li^{1+}	lithium	F^{1-}	fluoride
Na^{1+}	sodium	Cl^{1-}	chloride
K^{1+}	potassium	Br^{1-}	bromide
Cs^{1+}	cesium	I^{1-}	iodide
Be^{2+}	beryllium	O^{2-}	oxide
Mg^{2+}	magnesium	S^{2-}	sulfide
Al^{3+}	aluminum		
Ag^{1+}	silver		

*The root is given in color.

Zumdahl, Zumdahl, DeCoste, World of Chemistry 2002, page 86

Formula from Name: Criss-Cross Rule

Example: Aluminum Chloride

Step 1:

write out name with space

Step 2:

write symbols & charge of elements

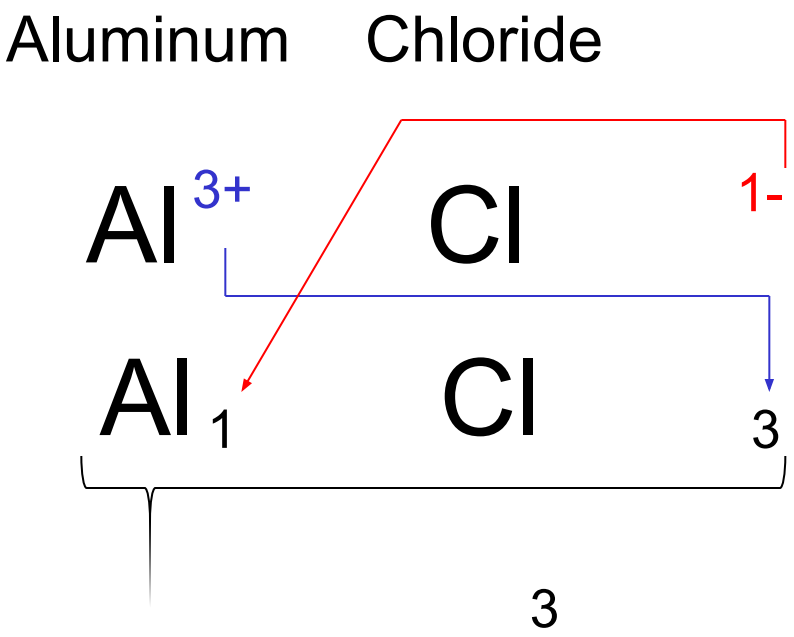
Step 3:

criss-cross charges as subsrcipts

Step 4:

AlCl

combine as formula unit
("1" is never shown)



Criss-Cross Rule

Example: Aluminum Oxide

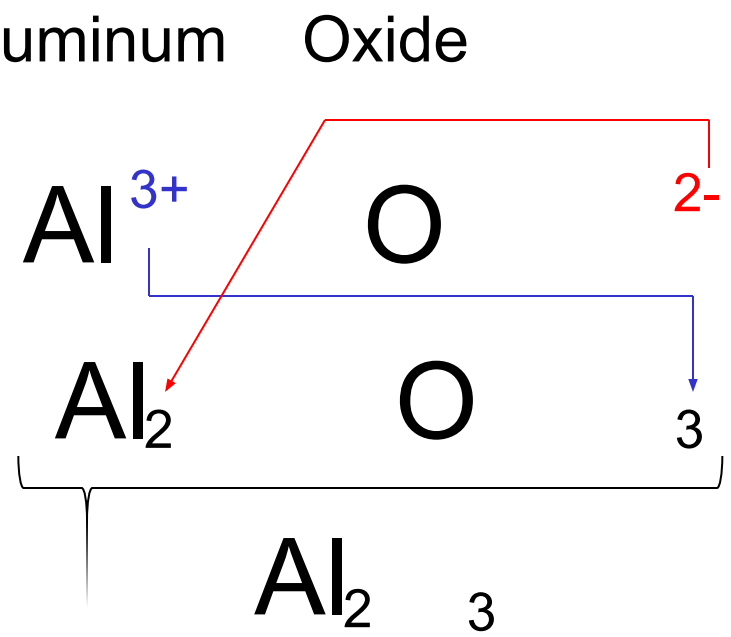
Step 1:
write out name with space

Step 2:
write symbols & charge of elements

Step 3:
criss-cross charges as subsrcipts

Step 4:
combine as formula unit

O



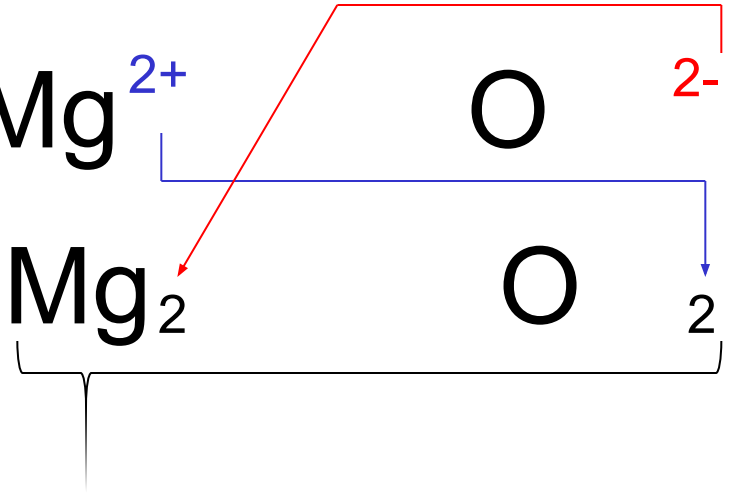
Criss-Cross Rule

Example: Magnesium Oxide

Step 1: Magnesium Oxide

Step 2: Mg^{2+} O^{2-}

Step 3: Mg_2 O_2



Step 4: Mg_2O_2

Step 5: MgO

(reduce subscripts to lowest ratio)

Naming Binary Compounds

	Formula	Name
1	BaO	barium oxide
2	NaBr	sodium bromide
3	MgI_2	magnesium iodide
4	KCl	potassium chloride
5	SrF_2	strontium fluoride
6	CsF	cesium fluoride