

Cations					Anions		
6+	4+	3+	2+	1+	1-	2-	3-
Cr ⁶⁺	Sn ⁴⁺	Al ³⁺	Group IIA ions	Group IA ions	H ⁻ (H ₂ O ₂)	CO ₃ ²⁻	AsO ₄ ³⁻
	Pb ⁴⁺	Cr ³⁺	Mn ²⁺	Cu ⁺	₂ H ₃ O ₂ ⁻ C	CrO ₄ ²⁻	³⁻ N
		Fe ³⁺	Fe ²⁺	Ag ⁺	Halogen ions	Cr ₂ O ₇ ²⁻	PO ₄ ³⁻
		Bi ³⁺	Co ²⁺	NH ₄ ⁺	ClO ⁻ , BrO ⁻ , IO ⁻	O ²⁻	
			Ni ²⁺		ClO ₂ ⁻ , BrO ₂ ⁻ , IO ₂ ⁻	S ²⁻	
			Cu ²⁺		ClO ₃ ⁻ , BrO ₃ ⁻ , IO ₃ ⁻	SO ₃ ²⁻	
			Zn ²⁺		NO ₂ ⁻	SO ₄ ²⁻	
			Cd ²⁺		NO ₃ ⁻		
			Sn ²⁺		CN ⁻		

*Know the names of all these, especially the polyatomic ions. Make up a list of the names up for yourself, you'll remember it better than if it was just given to you.

Naming Compounds

- **Ionic compounds:** Groups IA, IIA and Transition Metals attached to monatomic (Groups VA, VIA or VIIA) or polyatomic anions. Know the charges of each ion (oxidation numbers for monatomic species, charges for polyatomics) and put things together so that the net charge is zero or whatever it needs to be if the molecule is an ion. Since metals can have more than one oxidation state, use Roman numerals to indicate which oxidation state it is. Cations keep their name, monatomic anions change to the suffix "ide" and polyatomic anions keep their names.
- **Molecular Compounds:** Use Greek prefixes to indicate how many atoms of each element are present in the compound.

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

- **Acids:** Hydrogen is always the cation
- A. Binary compounds (H plus a monatomic ion):

Prefix
↓
hydro + **(anion name)** + **Change Suffix**
↓
(ide goes to ic) + **acid**

ex.) HCl is **hydrochloric acid**

B. Polyatomic ions: anion name

(anion name) + **Change Suffix**
(ate goes to ic)
(ite for to ous) + **acid**

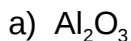
ex.) H₂SO₄ is **Sulfuric acid**

Student Packet: 2.4: Naming Chemical Compounds: AssessMe questions

- 1) The best example of a nonpolar molecule containing polar bonds is:
- A) CSe_2 B) H_2O C) CH_4 D) CCl_4 E) I'm clueless
- 2) Which of the following has zero overall dipole moment (i.e. is nonpolar)?
- A) H_2O B) NO_2 C) CCl_4 D) SO_3^{2-} E) I'm clueless
- 3) In the periodic table, where would you look for the most electronegative elements?
- A) upper left side
B) lower left side
C) upper right side
D) lower right side
E) I'm clueless
- 4) Out of the halogens, which member of the group has the highest electron affinity?
- A) F B) Cl C) Br D) I E) I'm clueless
- 5) Which of the following atoms would have the highest electron affinity?
- A) Ge B) As C) Se D) Sn E) I'm clueless
- 6) The outermost electrons in which of the following elements see the smallest effective nuclear charge?
- A) Ba B) Ca C) Xe D) Rb E) I'm clueless

Student Packet: 2.4: Naming Chemical Compounds: ShowMe questions

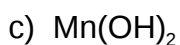
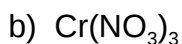
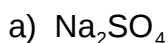
1) Give the name of each of the following compounds:



2) Give the name of each of the following compounds:



3) Give the name of each of the following compounds:



4) Write the compounds corresponding to the following names:

a) dinitrogen tetroxide

b) disulfur dichloride

5) Write the compound formulas corresponding to the following names:

a) sodium hexachloroplatinate (II)

b) potassium hexacyanoferrate (II)

Student Packet: 2.4: Naming Chemical Compounds: TestMe questions

- 1) The compound $K_2[NiCl_4]$ is named:
- A) potassium tetrachloronickelate (III)
 - B) potassium tetrachloronickelate (II)
 - C) potassium hexachloronickelate (II)
 - D) tetrachloronickel (II) potassium
 - E) None of the above
- 2) The compound ammonium sulfate has the formula:
- A) $NH_4(SO_4)_2$
 - B) NH_4SO_4
 - C) $(NH_3)_2SO_4$
 - D) $(NH_4)_2SO_4$
 - E) $(NH_4)_2SO_3$
- 3) The compound iron perchlorate has the formula:
- A) $Fe(ClO_4)_2$
 - B) $Fe(ClO_3)_2$
 - C) $FeClO_4$
 - D) $Fe(ClO)_2$
 - E) Fe_2ClO_4
- 4) The compound rubidium peroxide has the formula:
- A) RbO_2
 - B) Rb_2O
 - C) Rb_2O_2
 - D) $RbOH$
 - E) None of the above
- 5) The compound $Mg_3(PO_4)_2$ has the following name:
- A) magnesium phosphate
 - B) magnesium phosphite
 - C) trimagnesium diphosphate
 - D) manganese (II) phosphate
 - E) None of the above