

9/19/2018

Naming ionic compounds

name: ① [⊕] Cation [⊖] Anion
Metal Non-metals

Cation name:

(i) If metal only ever takes 1 charge, use element name.

(group IA, IIA, Al^{3+} , Zn^{2+} , Ag^+)

ex: Na^+ = sodium

ii) If metal has a variable charge, use element name plus charge in parentheses using Roman numerals.

(almost all transition metals, except Sc^{3+} , Zn^{2+} , Ag^+ as well as 'heavy metals': Ga, In, Sn, Tl, Pb)

ex: Cu^+ = copper(I)

Cu^{2+} = copper(II)

Fe^{2+} = iron(II)

Fe^{3+} = iron(III)

Pb^{4+} = lead(IV)

Pb^{2+} = lead(II)

cuprous
cupric
ferrous
ferric } know (✓)

Note: older naming system uses Latin name + endings:
-ous (lower charge) -ic (higher charge)

2. Anion names

- use element name
- change ending to $-ide$

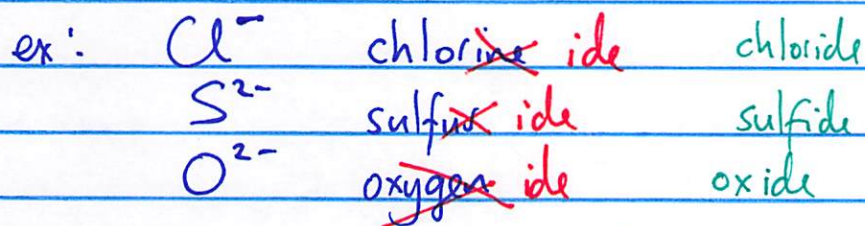
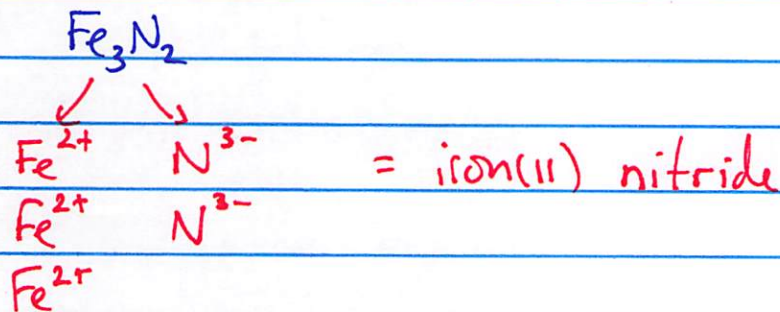
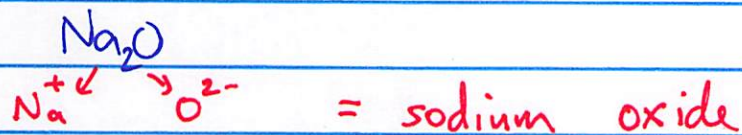
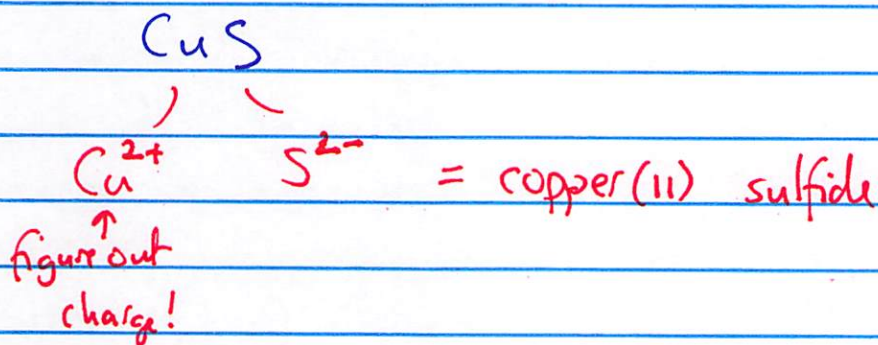
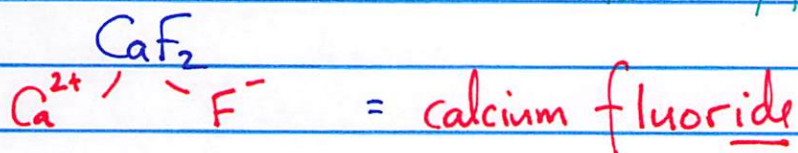


table 3-2

ex: Name...

fluorine / ~~flourine~~

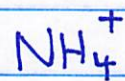


Polyatomic ions

contain 2 or more atoms w/ a charge.

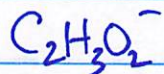
Need to know the following: (table 3-4)

(1+)

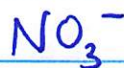


ammonium

(1-)



acetate



nitrate



bicarbonate/
hydrogen carbonate



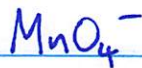
nitrite



hydroxide

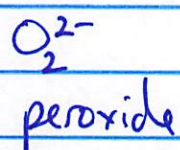
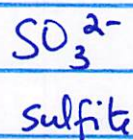
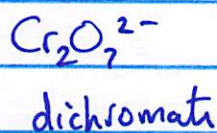
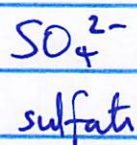
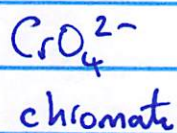
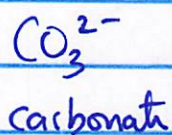


cyanide

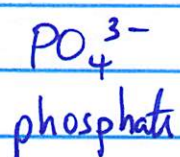


permanganate

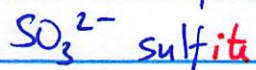
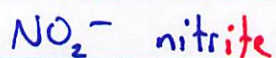
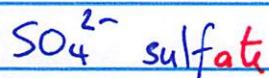
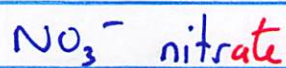
(2-)



(3-)

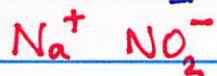
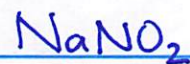


Note: -ate = "normal" # O's
 -ite = 1 fewer O than "normal"

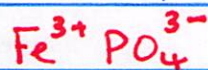
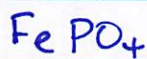


Naming ionic cpds w/ polyatomic ions

ex:

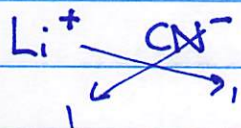


= sodium nitrite

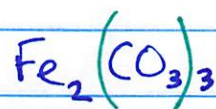
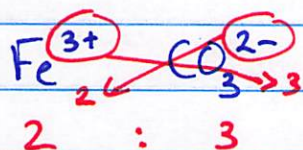


= iron(III) phosphate

lithium cyanide



iron(III) carbonate



use () for >1
polyatomic!