9/21/2018

name → formula

iron(III) carbonate

Fe^{3+} CO_3^{2-} = $Fe_2(CO_3)_3$

2 : 3

Hydrated ionic cpds

hydrates are ionic cpds w/ associated H_2O molecules.

ex: $CaSO_4 \cdot 2H_2O$ (gypsum ~ plaster / sheetrock / 'chalk')

$$CaSO_4 \cdot 2H_2O(s) \xrightarrow[\text{heat}]{\text{strong}} CaSO_4(s) + 2H_2O(g)\uparrow$$

waters of hydration

hydrates — anhydrate

$$CaSO_4 \cdot 2H_2O(s) \xrightarrow[\text{heat}]{\text{weaker}} CaSO_4 \cdot \tfrac{1}{2}H_2O(s) + \tfrac{3}{2}H_2O(g)\uparrow$$

gypsum — plaster-of-paris

Naming them: (1) Name ionic cpd
(2) Write a prefix indicating # waters
(3) Write 'hydrate'

#	½	1	2	3	4	5	6
prefix	hemi	mono	di	tri	tetra	penta	hexa

#	7	8	9	10
prefix	hepta	octa	nona	deca

ex: $CaSO_4 \cdot 2H_2O$

calcium sulfate dihydrate

$CuCO_3 \cdot 8H_2O$

Cu^{2+} CO_3^{2-}

copper(II) carbonate octahydrate

Molecular cpds formulas + names.

- 2 x non-metal elements!

ex: N_2O, N_2O_5, NO, NO_2, CF_4, PCl_3

Some have common names: ex: H_2O = water

NH_3 = ammonia

CH_4 = methane

Use a systematic approach to naming!

Name: [prefix] [name of 1st element] – [prefix] [base name of 2nd element + -ide]

- omit prefix mono for 1st element
- omit last letter of prefix if there are 2 vowels in a row which sound gross.

ex: N_2Cl_5

dinitrogen pentachloride

P_4O_{10} — tetraphosphorus decaoxide

CO — ~~monocarbon~~ monoxide

carbon monoxide

Acid names + formulas

└ dissolve in H_2O, form H^+ ion, taste sour, dissolve metals...

$HF(aq)$ = hydrofluoric acid
$HCl(aq)$ = hydrochloric acid
$HNO_3(aq)$ = nitric acid
$H_2SO_4(aq)$ = sulfuric acid
$H_3PO_4(aq)$ = phosphoric acid.

↑ dissolved in water

Exam 1: Over ch 1+2 (not 3)