Naming Inorganic Compounds 2

This worksheet contains numerous questions related to the naming of inorganic compounds. If you have not already done so, it is probably worth looking over the information given in the handout "Naming Inorganic Compounds".

EXERCISES

A. Write the symbols for the following cations (positive ions):

1) sodium
2) calcium
3) copper (II)
4) aluminum
5) iron (III)
6) zinc
7) potassium
8) silver
9) magnesium
10) hydrogen
11) ammonium
12) manganese (IV)

B. Write the symbols for the following anions (negative ions):

1) chloride
2) bromide
3) iodide
4) sulphide
5) oxide
6) sulphate
7) sulphite
8) nitrate
9) nitrite
10) hydroxide
11) phosphate
12) carbonate
13) chlorate
14) chlorite

C. Name the following binary molecular compounds composed of nonmetals:

1) CO
2) CO_2
3) PBr_5
4) SO_2
5) SO_3
6) $C\ell_2O_7$
7) $H_2S_{(g)}$
8) NF_3
9) N_2O_5
10) NO_2

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D. Name the following ionic compounds:

1) $CuC\ell_2$
2) $Fe(OH)_3$
3) FeO
4) $MnCO_3$
5) Hg_2S
6) $HgSO_4$
7) $FeC\ell_2$
8) $FeC\ell_3$

E. Name each compound:

1) $AgC\ell$
2) $HC\ell_{(aq)}$
3) $MgBr_2$
4) Cu_2S
5) $Fe(NO_3)_2$
6) LiH
7) $Mn(C_2H_3O_2)_2$
8) NH_4I
9) PF_3
10) $MnSO_4$
11) $NaC_2H_3O_2$
12) CaF_2
13) CaO_2
14) Li_2CO_3
15) $H_2S_{(aq)}$
16) $A\ell_2S_3$
17) $HBr_{(g)}$
18) Mg_3P_2
19) Na_2SO_3
20) KCN

F. Write chemical formulas for the following compounds:

1) ammonium iodide
2) silver oxide
3) sulphurous acid
4) chlorous acid
5) copper (I) oxide
6) potassium chlorate
7) calcium carbonate
8) sodium permanganate
9) carbonic acid
10) zinc phosphate
11) hydroiodic acid
12) nickel (II) carbonate
13) ammonium hydroxide
14) lead (II) nitrate
15) acetic acid
16) iron (III) sulphate
17) zinc oxide
18) hydrocyanic acid

G. Name the acid from which each of the following salts may be derived:

1) potassium nitrate
2) potassium nitrite
3) calcium carbonate
4) iron (III) sulphate
5) manganese (II) chlorate
6) sodium fluoride
7) potassium hypochlorite
8) calcium perchlorate

H. State what is wrong with the provided name of each of the following compounds. Write the correct name for each compound:

1) CuF = copper fluoride

2) NaCℓO = sodium chlorite

3) $HBr_{(aq)}$ = bromic acid

4) MgS = magnesium sulphite

5) P_2O_3 = dipotassium trioxide

6) $HCℓ_{(g)}$ = hydrochloric acid

7) NF_3 = nitrogen fluoride

8) $FeSO_4$ = iron (I) sulphate

SOLUTIONS

A. (1) Na^+ (2) Ca^{2+} (3) Cu^{2+} (4) $A\ell^{3+}$ (5) Fe^{3+} (6) Zn^{2+} (7) K^+ (8) Ag^+ (9) Mg^{2+} (10) H^+ (11) NH_4^+ (12) Mn^{4+}

B. (1) $C\ell^-$ (2) Br^- (3) I^- (4) S^{2-} (5) O^{2-} (6) SO_4^{2-} (7) SO_3^{2-} (8) NO_3^- (9) NO_2^- (10) OH^- (11) PO_4^{3-} (12) CO_3^{2-} (13) $C\ell O_3^-$ (14) $C\ell O_2^-$

C. (1) carbon monoxide (2) carbon dioxide (3) phosphorus pentabromide (4) sulphur dioxide (5) sulphur trioxide (6) dichlorine heptoxide (7) hydrogen sulphide (8) nitrogen trifluoride (9) dinitrogen pentoxide (10) nitrogen dioxide

D. (1) copper (II) chloride (2) iron (III) hydroxide (3) iron (II) oxide (4) manganese (II) carbonate (5) mercury (I) sulphide (6) mercury (II) sulphate (7) iron (II) chloride (8) iron (III) chloride

E. (1) silver chloride (2) hydrochloric acid (3) magnesium bromide (4) copper (I) sulphide (5) iron (II) nitrate (6) lithium hydride (7) manganese (II) acetate (8) ammonium iodide (9) phosphorus trifluoride (10) manganese (II) sulphate (11) sodium acetate (12) calcium fluoride (13) calcium peroxide (14) lithium carbonate (15) hydrosulphuric acid (16) aluminum sulphide (17) hydrogen bromide (18) magnesium phosphide (19) sodium sulphite (20) potassium cyanide

F. (1) NH_4I (2) Ag_2O (3) H_2SO_3 (4) $HC\ell O_2$ (5) Cu_2O (6) $KC\ell O_3$ (7) $CaCO_3$ (8) $NaMnO_4$ (9) H_2CO_3 (10) $Zn_3(PO_4)_2$ (11) HI (12) $NiCO_3$ (13) NH_4OH (14) $Pb(NO_3)_2$ (15) $HC_2H_3O_2$ (16) $Fe_2(SO_4)_3$ (17) ZnO (18) HCN

G. (1) nitric acid (2) nitrous acid (3) carbonic acid (4) sulphuric acid (5) chloric acid (6) hydrofluoric acid (7) hypochlorous acid (8) perchloric acid

H. (1) Copper comes with two valences, so it must be specified: copper (I) fluoride.
(2) The anion has been misidentified: sodium hypochlorite.
(3) Bromic acid would be an oxyacid ($HBrO_3$): hydrobromic acid.
(4) A sulphite is an oxyanion (SO_3^{2-}): magnesium sulphi**d**e.
(5) The cation has been misidentified; potassium is K: diphosphorus trioxide.
(6) The (g) indicates this is a gas; acids have (aq): hydrogen chloride.
(7) This is a covalent compound so prefixes must be used: nitrogen trifluoride.
(8) The sulphate ion is SO_4^{2-}, so the iron must be 2+, not +: iron (II) sulphate.