

1. Formula Writing Practice: Write the missing name or formula:

(Rule of thumb: formulas are usually only two words long.)

(Make sure you are naming it according to the correct system: ionic, covalent, acid.)

KI potassium iodide

P₂O₅ diphosphorus pentoxide

ZnCr₂O₇ Zinc dichromate

chromic hydroxide Cr(OH)₃

CuBr₂ copper(II) bromide (cupric bromide)

xenon tetrafluoride XeF₄

SBr₂ sulfur dibromide

ammonium carbonate (NH₄)₂CO₃

SO₃⁻² sulfite ion

Sn(CO₃)₂ tin (IV) carbonate (stannic carbonate)

SO₃ sulfur trioxide

PbSO₄ lead (II) sulfate

hydroiodic acid HI

ferric bisulfate * Fe(HSO₄)₃

* hint: "bisulfate" is the name of an ion! it's on your ion sheet.

carbonic acid H₂CO₃

helium He oxygen O₂

arsenic acid H₃AsO₄

ferrous phosphate Fe₃(PO₄)₂

or plumbous sulfate

aluminum bicarbonate* Al(HCO₃)₃

* hint: "bicarbonate" is the name of an ion! it's on your ion sheet.

HClO₂ chlorous acid

sulfurous acid H₂SO₃

H₂S hydrosulfuric acid

Si₃N₄ trisilicon tetranitride

S₂F₁₀ disulfur decafluoride

Pb₃N₄ lead (IV) nitride (plumbic nitride)

chromium (II) silicate CrSiO₃

N₂O₄ dinitrogen tetroxide

Cl₂O dichlorine monoxide

Na₂O sodium oxide

barium oxide BaO

barium hydroxide Ba(OH)₂

barium peroxide BaO₂

barium hydride BaH₂

AP formulas / Rxns Packet page 2

3. Fill in the missing name or formula for each element, compound, or ion.

NO Nitrogen monoxide

sulfur hexafluoride SF₆

CaO calcium oxide

HNO₃ nitric acid

CaO₂ calcium peroxide

HNO₂ nitrous acid

calcium acetate Ca(C₂H₃O₂)₂

HBr hydrobromic acid

oxalic acid H₂C₂O₄

ferric chromate Fe₂(CrO₄)₃

lithium oxalate Li₂C₂O₄

NO₂ nitrogen dioxide

Gallium permanganate Ga(MnO₄)₃

*gallium isn't on your ion sheet, but you can figure out the charge based on its position on the periodic table!

↑ group III so Ga⁺³

3. Reactions Practice Part I

Name: _____

Seat # _____

(We'll do a few of these in class. Check answers in problem notebook)

Write a chemical equation for each reaction. You need not balance. Show phase subscripts.

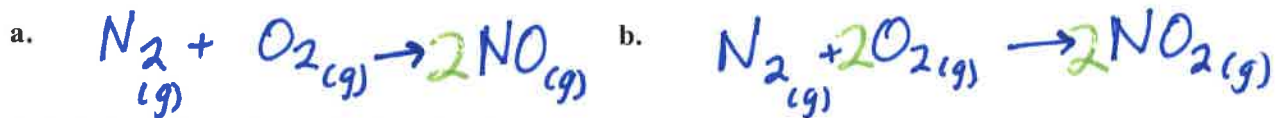
If a reaction is "N.R." you still need to write formulas for reactants, with an arrow going to NR.

f I balanced
mine for fun

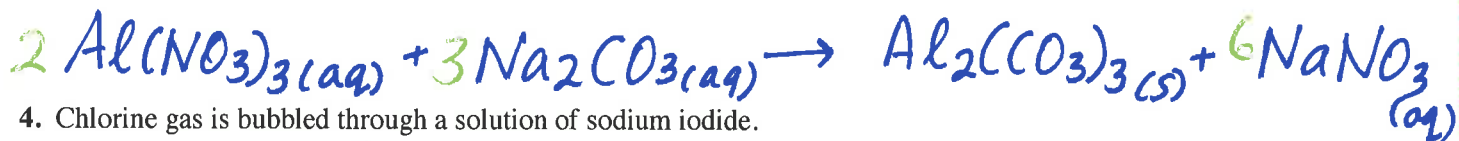
1. Acetylene gas (
- C_2H_2
-) is combusted in air.



2. Nitrogen and oxygen react at high temperature (Show two possible reactions)



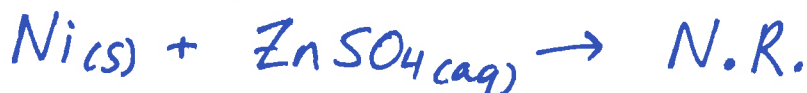
3. Solutions of aluminum nitrate and sodium carbonate are mixed.



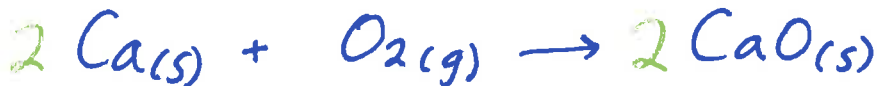
4. Chlorine gas is bubbled through a solution of sodium iodide.



5. A piece of nickel is dropped into a solution of zinc sulfate.



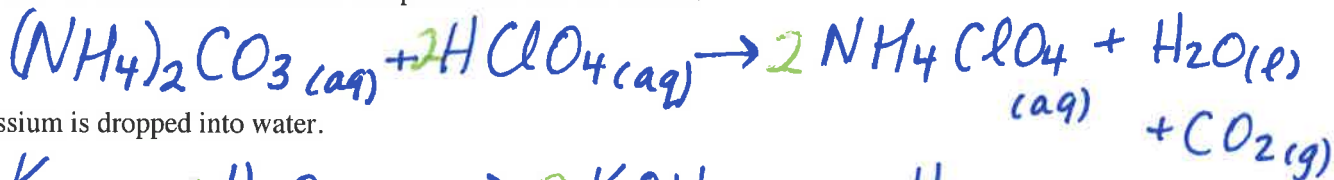
6. A piece of calcium is placed in a crucible, and is heated until it starts burning.



7. A heated piece of calcium reacts with the nitrogen in the air.



8. Solutions of ammonium carbonate and perchloric acid are mixed.



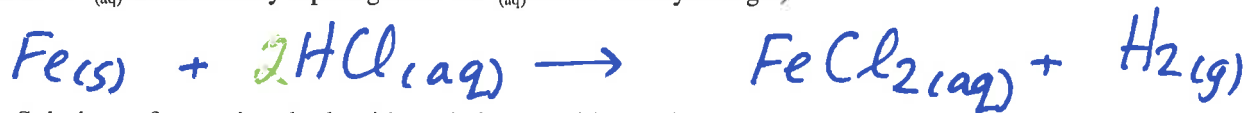
9. Potassium is dropped into water.



10. Tin is dropped into water.



11. A piece of iron is dropped into a solution of hydrochloric acid. A
- green
- solution forms.

(Note: $Fe^{2+}_{(aq)}$ ion is usually a pale green. $Fe^{3+}_{(aq)}$ ion is usually orange.)

12. Solutions of potassium hydroxide and nitrous acid are mixed.



13. A piece of zinc is dropped into a solution of ferric nitrate.



4. Reactions Practice Part II.

Write a chemical equation for each reaction. Balance and show phase subscripts. Two are N.R. If a reaction is "N.R." you still need to write formulas for reactants, with an arrow going to NR.

1. Fluorine gas is bubbled through a solution of lithium bromide.



2. Solid iodine is stirred into a solution of lithium fluoride.



3. Solid lithium carbonate is added to a solution of bromic acid.



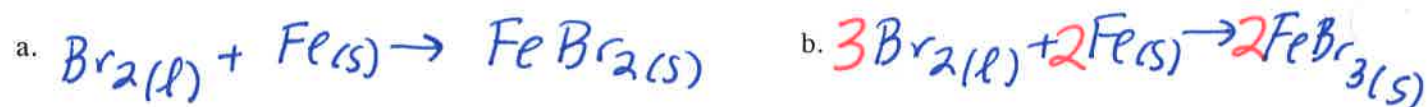
4. Solutions of sodium hydroxide and bromous acid are mixed.



5. A piece of magnesium is placed into a solution of chromium (III) sulfate.



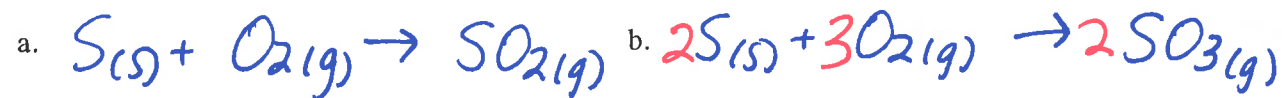
6. Bromine reacts with iron powder. (Show the two possible balanced equations, depending on the charge of iron that forms).



7. Coal (carbon) burns in a power plant.



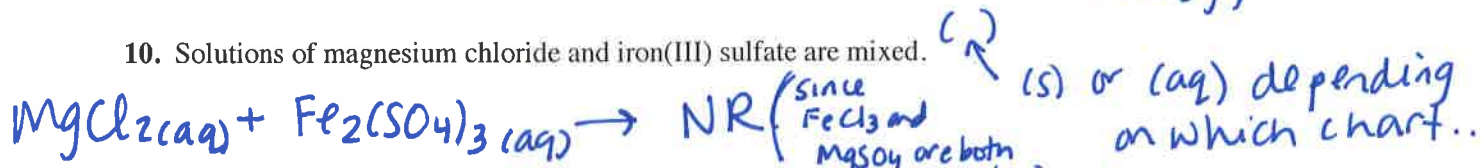
8. Sulfur is burned in air. (Show two possible reactions)



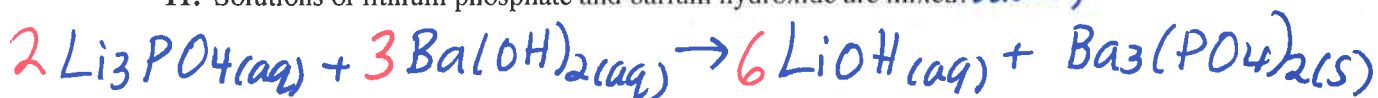
9. Calcium metal is dropped into water.



10. Solutions of magnesium chloride and iron(III) sulfate are mixed.



11. Solutions of lithium phosphate and barium hydroxide are mixed.



12. Liquid cyclohexene (C_6H_{10}) is combusted in air.



Write a net ionic equation for each reaction, including subscripts. Balance at least reactions 1-10.

Note: Not all reactions will have compounds that should be split up! Only aqueous ionic compounds and aqueous strong acids should be split up into ions. (Assume that all acids given in this part are strong acids) None of these are N.R. For the starred (*) reactions, fill in the blanks to indicate the substance oxidized (if any), the substance reduced (if any), and the overall # of electrons transferred (if any).

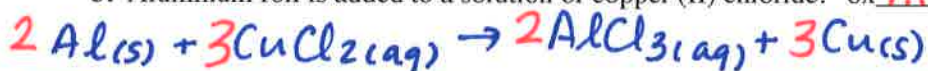
*1. Solutions of magnesium sulfate and potassium phosphate are mixed. ox ϕ red ϕ #e- ϕ



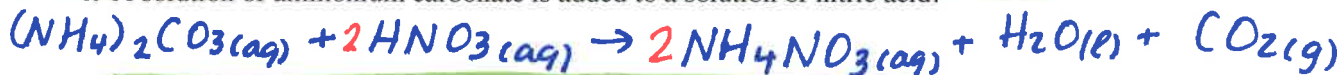
*2. Aluminum is added to bromine, and the mixture is heated until reaction occurs. ox Al red Br_2 #e- 6



*3. Aluminum foil is added to a solution of copper (II) chloride. ox Al red Cu^{+2} #e- 6



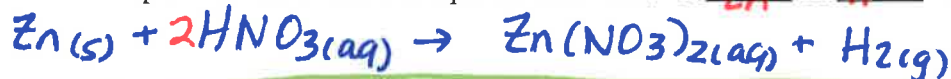
4. A solution of ammonium carbonate is added to a solution of nitric acid.



*5. Fluorine gas is bubbled through a solution of potassium iodide. ox I^{-1} red F_2 #e- 2



*6. A piece of zinc is added to aqueous nitric acid. ox Zn red H^{+1} #e- 2



*7. A freshly cut piece of sodium reacts with the oxygen in the air. ox Na red O_2 #e- 4



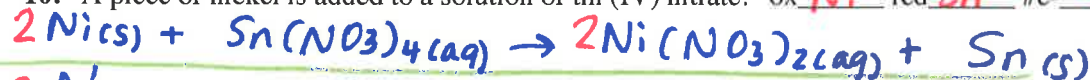
*8. Magnesium powder is added to water. ox Mg red H #e- 2



9. Octane ($\text{C}_8\text{H}_{18}(\text{l})$) burns in your car engine.



*10. A piece of nickel is added to a solution of tin (IV) nitrate. ox Ni red Sn^{+4} #e- 4



Reactions Practice Part III, Continued. (Same instructions as the previous page) (balancing not necessary)

*11. Hydrobromic acid and sodium hydroxide solutions are mixed. ox ϕ red ϕ #e- ϕ



12. Hydrogen burns.



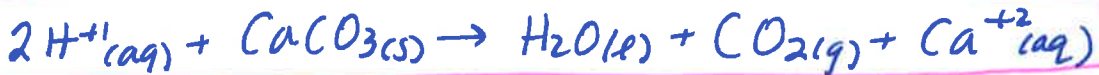
*13. A piece of barium is dropped into water. ox Ba red H #e- 2



14. Solutions of hydrochloric acid and sodium carbonate are mixed.



*15. A solution of hydrobromic acid is poured onto calcium carbonate powder. ox ϕ red ϕ #e- ϕ



*16. A solution of hydrobromic acid is poured onto magnesium powder. ox Mg red H⁺ #e- 2



*17. Solutions of hydroiodic acid and lead (II) nitrate are mixed. ox ϕ red ϕ #e- ϕ



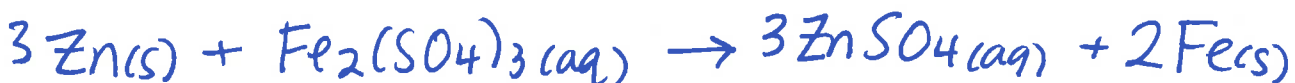
18. A mixture of hydrogen and nitrogen gas is heated in the presence of a catalyst.



*19. Bromine reacts with sodium. ox Na red Br₂ #e- 2



*20. A piece of zinc is added to a solution of iron (III) sulfate. ox Zn red Fe⁺³ #e- 6



except you kind of need to figure out # e- transferred..