**SI WORKSHEET 8**

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| Ion/ compound | Solubility |
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| Group 1a/ NH4+ | Always soluble |
| ClO3-/ ClO4- | Always soluble |
| NO3- | Always soluble |
| CH3COO- | Always soluble |
| C2O42- | Insoluble unless with Group 1 metal or NH4+ |
| CO32- | Insoluble unless with Group 1 metal or NH4+ |
| PO43- | Insoluble unless with Group 1 metal or NH4+ |
| S2- | Insoluble unless with Group 1 metal, Mg, Ca, Sr, Ba, or NH4+ |
| OH- | Insoluble unless with Group 1 metal or NH4+ |
| Cl-, Br-, I- | Soluble unless with Pb, Hg, or Ag |

1. Name the 7 strong acids and 7 strong bases.

Acids- HCl, HBr, HI, HClO4, HClO3, H2SO4, and HNO3

Bases- LiOH, NaOH, KOH, RbOH, Ca(OH)2, Sr(OH)2, Ba(OH)2

1. State if soluble or not, and the reason why the compound is soluble or insoluble:
	1. Ammonium phosphate SOLUBLE BECAUSE OF AMMONIUM
	2. Iron (III) Chloride SOLUBLE BECAUSE OF CHLORIDE
2. Potassium Sulfide SOLUBLE BECAUSE OF POTASSIUM
3. Barium Sulfate INSOLUBLE BECAUSE OF BARIUM
4. Calcium phosphate INSOLUBLE BECAUSE OF PHOSPHATE
5. AlCl3 + K3PO4 🡪 AlPO4 + 3KCl
6. Knowing this reaction has a 70% yield how much precipitant is formed from 100 grams of each reactant? $\frac{100 g K3PO4}{}x\frac{1 mole K3PO4}{212.3 g K3Po4}x\frac{1 mole AlPO4}{1 mole K3PO4}x\frac{122.5 g AlPO4}{1 mole AlPO4}$=57.7 g AlPO4=Ty

Ay/Ty= 70% 🡪 x/57.7=.70 🡪 x= 40.3 g= Ay= amount of precipitant formed

1. What is the net ionic equation? Al3+ + PO43-🡪 AlPO4
2. H2SO4 + NaHCO3 🡪 H2CO3 + Na2SO4
3. What kind of equation is this? Acid/base/exchange/gas forming
4. Provide the total and net ionic equations.

Total: H+ + SO42- + Na+ + HCO3- 🡪 H2CO3 + Na+ + SO42-

Net: H+ + HCO3- 🡪 H2CO3

 \*REMEMBER IT RAPIDLY DECOMPOSES. SOOOO instead we have….. H+ + HCO3-🡪 H2O +CO2

1. FeCl3 + Co3(PO4)2 🡪 Fe3(PO4)2 + CoCl3
	1. Which element is oxidizing agent and which is reducing agent? FeCl3 is oxidizing agent; Cobalt (II) Phosphate is the reducing agent.
	2. What is the net ionic equation? 3Fe3+ + Co32+ 🡪 3Co3+ + Fe32+
2. Think about it: CH3COOH + NH3 🡪 CH3COO- + NH4+. Will there be more products or more reactants?

More reactants. Acetic acid is a weak acid and ammonia is a weak base, weak acids/bases do not dissociate much. Because neither one dissociates much, there will be more reactants.