1. Which reaction is a precipitation reaction?
   1. 2 FeO(s) 🡪 2 Fe(s) + O2(g)
   2. 2 NaCl(aq) + Ba(NO3)2(aq) 🡪 2 NaNO3(aq) + BaCl2(aq)
   3. **CaBr2(aq) + Li2SO4(aq) 🡪 CaSO4(s) + 2 LiBr (aq)**
   4. H2SO4(aq) + 2 KOH(aq) 🡪 2 H2O(l) + K2SO4(aq)
2. A black background with white dots and a plus sign

   Description automatically generatedWhat is the precipitate formed by the reaction shown in the picture?
   1. NaCl
   2. Na2S
   3. **Al2S3**
   4. AlCl3
   5. SCl2
3. When a precipitation reaction occurs, the ions that do not form the precipitate

a. evaporate.

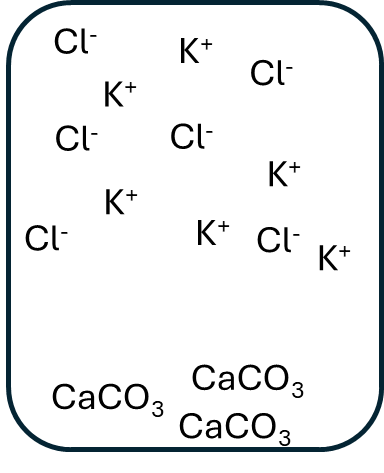
b. are cations only.

c. form a second insoluble compound in the solution.

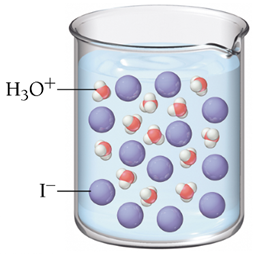
d. **are left dissolved in the solution.**

e. react with water.

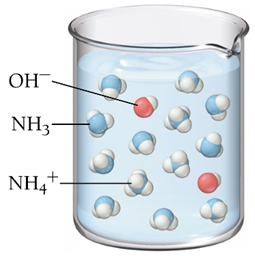
1. An aqueous solution of silver nitrate is mixed with an aqueous solution of sodium chloride. Which species is/are in the net ionic equation? Select any that apply.
   1. Na+(aq)
   2. NO3-(aq)
   3. **Cl-(aq)**
   4. **Ag+(aq)**
   5. N3-(aq)



1. The picture to the right shows the products of a precipitation reaction. What reactants were added to the water?
   1. KCl(aq) and CaCO3(aq)
   2. KCl(aq) and CaCO3(s)
   3. Ca2+(aq) and CO32-(aq)
   4. K+(aq), Cl-(aq), Ca2+(aq), and CO32-(aq)
   5. **K2CO3(aq) and CaCl2(aq)**
2. An aqueous solution of ammonium sulfide is mixed with an aqueous solution of magnesium chloride. What are the spectator ions?
   1. NH4+(aq) and S2-(aq)
   2. Mg2+(aq) and Cl-(aq)
   3. Mg2+(aq) and S2-(aq)
   4. **NH4+(aq) and Cl-(aq)**
   5. NH4+(aq) and Mg2+(aq)
3. What is the net ionic equation for the reaction of potassium hydroxide and strontium chloride?
   1. K+(aq) + OH-(aq) 🡪 KOH(s)
   2. **Sr2+(aq) + 2 OH-(aq) 🡪 Sr(OH)2(s)**
   3. K+(aq) + Cl-(aq) 🡪 KCl(s)
   4. Sr2+(aq) + 2 Cl-(aq) 🡪 SrCl2(s)
   5. There is no net ionic equation because there is no reaction.



1. The picture to the right represents a
   1. **Strong acid**
   2. Strong base
   3. Weak acid
   4. Weak base



1. The picture to the right represents a
   1. Strong acid
   2. Strong base
   3. Weak acid
   4. **Weak base**

Images from Tro, Introductory Chemistry

1. Which substances are either a weak acid or a weak base? Select any that apply.
   1. HCl
   2. **CH3CH2NH3**
   3. **HC2H3O2**
   4. HNO3
   5. Ca(OH)2
2. What is the full, molecular, generic reaction when a strong acid reacts with a strong base?
   1. HX + MOH 🡪 H2O
   2. **HX + MOH 🡪 MX + H2O**
   3. HX + NH3 🡪 NH4+ + X-
   4. HX + NH3 🡪 NH4X + H2O
3. What is the net ionic equation for the reaction between nitric acid and calcium hydroxide?
   1. **H+(aq) + OH-(aq) 🡪 H2O(l)**
   2. Ca2+(aq) + OH-(aq) 🡪 Ca(OH)2(s)
   3. Ca2+(aq) + NO3-(aq) 🡪 Ca(NO3)2(s)
   4. H+(aq) + NO3-(aq) 🡪 HNO3(l)

|  |
| --- |
| Solubility Rules |
| 1. All nitrate and acetate salts are soluble. 2. All Group 1 and ammonium (NH4+) salts are soluble. 3. Most Group 17 salts are soluble. Notable exceptions are Group 17 salts containing Ag+, Pb2+, and Hg22+. 4. Most sulfate salts are soluble. Notable exceptions are BaSO4, PbSO4, and CaSO4. 5. Most hydroxide compounds are insoluble. Notable exceptions are NaOH, KOH, Ba(OH)2, and Ca(OH)2. 6. Most sulfide (S2-), carbonate (CO32-), and phosphate (PO43-) salts are insoluble. |