Worksheet: **Solution Stoichiometry**

1. How many grams of lead (II) nitrate are needed to fully react 23.5 mL of 0.55 M sodium chloride in the precipitation of lead (II) chloride?

Pb(NO3)2 + 2NaCl PbCl2 + 2NaNO3

2. When 53 mL of 0.75 M cobalt (III) nitrate are added to a sodium sulfate solution, how many grams of cobalt (III) sulfate can be precipitated?

2Co(NO3)3 + 3Na2SO4 Co2(SO4)3 + 6NaNO3

3. How many grams of aluminum hydroxide will be neutralized by 45.3 mL of 0.55 M HCl ?

3HCl + Al(OH)3 AlCl3 + 3H2O

4. What mass of AgCl will precipitate when .050 L of a 0.0500 M solution of AgNO3 reacts with 25.0 mL of 0.0330 M NaCl ?

AgNO3(aq) + NaCl (aq) NaNO3(aq) + AgCl (s)

5. 50.0 mL of 0.100 M Na3PO4 is mixed with 150.0 mL of 0.250 M Pb(NO3)2 to produce a solid precipitate of lead (II) phosphate. What mass of this precipitate will be produced?

3Pb(NO3)2 (aq) + 2Na3PO4 (aq) Pb3(PO4)2 (s) + 6NaNO3 (aq)

6. What mass of solid aluminum hydroxide is produced when 50.0 mL of 0.200 M Al(NO3)3 is added to 200.0 mL of 0.100 M KOH?

Al(NO3)3 (aq) + 3KOH (aq) Al(OH)3 (s) + 3KNO3 (aq)

7. What mass of barium sulfate is produced when 100.0 mL of a 0.100 M solution of barium chloride is mixed with 100.0 mL of a 0.100 M solution of iron (III) sulfate?

3BaCl2 (aq) + Fe2(SO4)3 (aq) 3BaSO4 (s) + FeCl3 (aq)

8. How many grams of silver chloride can be prepared by the reaction of 100.0 mL of 0.20 M silver nitrate with 100.0 mL of 0.15 M calcium chloride?

2AgNO3 (aq) + CaCl2 (aq) 2AgCl (s) + Ca(NO3)2 (aq)