

Limiting Reagent Problems

1. If aqueous solutions of containing silver nitrate and calcium chloride are mixed, solid silver chloride is formed. The original solutions contain 0.010 moles of silver nitrate and 0.010 moles of calcium chloride. Calculate the maximum mass of silver chloride that can be produced. 1.43 g AgCl
2. A strip of zinc metal is placed in a solution of copper (II) chloride, and a reaction occurs. The solution originally contains 2.0 grams of copper (II) chloride. If 2.0 grams of zinc were added, calculate the mass of zinc chloride produced. What is the mass of the left over reactant?
2.0 g ZnCl₂ 1.0 g Zn left
3. A 5.00 gram sample of antimony and a 1.00 gram sample of sulfur are heated together to produce antimony (III) sulfide. What is the maximum yield of antimony (III) sulfide?
3.53 g Sb₂S₃
4. Determine the mass of barium sulfate produced by mixing solutions containing 6.0 grams of potassium sulfate and 8.00 grams of barium nitrate. 7.1 g BaSO₄
5. What mass of magnesium phosphate is produced when 7.00 grams of magnesium hydroxide react with 9.00 grams of phosphoric acid? How much water is produced? What mass of reactant remains? 10.5 g Mg₃(PO₄)₂ 4.32 g H₂O 1.16 g H₃PO₄ left

Stoichiometry Problems

1. If aqueous solutions of containing silver nitrate and calcium chloride are mixed, solid silver chloride is formed. The original solutions contain 6.82×10^{24} formula units of silver nitrate. Calculate the maximum mass of silver chloride that can be produced. 1620 g
2. A strip of zinc metal is placed in a solution of copper (II) chloride, and a reaction occurs. The solution originally contains 2.0 grams of copper (II) chloride. What mass of zinc chloride will be produced? 2.03 g
3. A 5.00 gram sample of antimony and some sulfur are heated together to produce antimony (III) sulfide. What is the maximum yield of antimony (III) sulfide? 6.98 g
4. Determine the mass of barium sulfate produced by mixing solutions containing excess potassium sulfate and 8.00 grams of barium nitrate. 7.14 g
5. What mass of magnesium phosphate is produced when 45.32 ml of 1.526 M magnesium hydroxide react with extra phosphoric acid? How much water is produced? What mass of phosphoric acid is required?
2.49 g water, 6.06 g magnesium phosphate, 4.52 g phosphoric acid