

For each reaction described below, first write the complete, balanced formula equation (use your ion chart if necessary). Then use stoichiometry to calculate the correct amount of the desired reactant or product. Assume that all reactions go to completion.

1. How many grams of liquid water are formed when 6.51 g of hydrogen gas react with excess oxygen gas?
2. 10.7 g of sodium metal completely react with how many grams of solid sulfur to form solid sodium sulfide?
3. How many grams of solid magnesium sulfate are formed when excess magnesium metal reacts with 26.2 g of sulfuric acid in solution in a single replacement reaction?
4. 14.9 g of magnesium metal burns in excess oxygen gas. How many grams of solid magnesium oxide are formed?
5. How many grams of iron(III) chloride in solution are needed to completely react with 16.1 g of sodium hydroxide in solution in a double replacement reaction?
6. 16.3 g of solid barium hydroxide decomposes into how many grams of liquid water? The other product is solid barium oxide.
7. How many grams of sodium chloride in solution are formed by the reaction of excess hydrochloric acid in solution with 22.6 g of sodium hydroxide in solution in an acid-base reaction?
8. 8.87 g of solid zinc(II) chloride will completely decompose into how many grams of zinc metal? Chlorine gas is the other product.
9. How many grams of aluminum acetate in solution are needed to completely react with 20.9 g of sulfuric acid in solution in a double replacement reaction?
10. How many grams of hydrochloric acid in solution are formed when 14.5 g of chlorine gas react with excess hydrogen gas?
11. Excess chlorine gas reacts with 25.8 g of solid potassium iodide to form how many grams of iodine gas in a single replacement reaction?
12. How many grams of oxygen gas are required to completely react with 16.1 g of aluminum metal when the aluminum is burned to produce aluminum oxide?
13. 23.7 g of silver(I) nitrate in solution completely react with copper metal to form how many grams of silver metal in a single replacement reaction? Assume copper(I) ions are formed.
14. Excess solid sulfur burns in 15.4 g of oxygen gas to form how many grams of solid sulfur dioxide?
15. 17.7 g of solid potassium chlorate completely decomposes forming how many grams of solid potassium chloride? The other product is oxygen gas.
16. How many grams of solid silver(I) sulfide are formed when 22.2 g of silver metal react with excess solid sulfur?