Limiting Reactant Practice

1. 2 Na(s) + Cl2(g) 🡪 2 NaCl(s)
   1. 6.0 mol of Na and 4.0 mol of Cl2 are mixed. How many moles of NaCl in moles can be made from this mixture?
   2. What is the limiting reactant?
   3. What is the excess reactant?
2. C2H4(g) + 3 O2(g) 🡪 2 CO2(g) + 2 H2O(g)
   1. 2.7 mol of C2H4 is reacted with 6.3 mol of O2, how many moles of water will be made?
   2. What is the limiting reactant?
   3. What is the excess reactant?
3. 2 Cu(s) + S(s) 🡪 Cu2S(s)
   1. If 80.00 grams of copper is reacted with 25.00 grams of sulfur, how many grams of product can be produced?
   2. What is the limiting reactant?
   3. What is the excess reactant?
   4. How many grams of the excess reactant are left over at the end of the reaction?

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4. CaCO3(s) 🡪 CaO(s) + CO2(g)
   1. How many grams of CaO can be made by heating 24.8 grams of CaCO3?
   2. How many liters of CO2 gas are made at STP from decomposing 24.8 g of CaCO3?
5. 3 CaCO3 + 2 FePO4 🡪 Ca3(PO4)2 + Fe2(CO3)3
   1. 100.00 grams of calcium carbonate and 45.00 grams of iron (III) phosphate are mixed and allowed to react. What mass of iron (III) carbonate is formed?
6. 3 NH4NO3 + Na3PO4 🡪 (NH4)3PO4 + 3 NaNO3
   1. 30.00 grams of ammonium nitrate and 50.00 grams of sodium phosphate are mixed and allowed to react. What mass of ammonium phosphate is formed?
   2. What is the limiting reactant?
   3. What is the excess reactant?
   4. How many grams of excess reactant remain unreacted?

Answers:

1a) 6.0 mol NaCl 1b) Na 1c) Cl2 2a) 4.2 mol H2O 2b) O2 2c) C2H4

3a) 100.2 g Cu2S 3b) Cu 3c) S 3d) 4.814 g S

4a) 13.9 g CaO 4b) 5.55 L CO2 5a) 21.76 g Fe2(CO3)3

6a) 18.63 g (NH4)3PO4 6b) NH4NO3 6c) Na3PO4 6d) 29.52 g Na3PO4

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3. 3 NH4NO3 + Na3PO4 🡪 (NH4)3PO4 + 3 NaNO3
   1. 30.00 grams of ammonium nitrate and 50.00 grams of sodium phosphate are mixed and allowed to react. What mass of ammonium phosphate is formed?
   2. What is the limiting reactant?
   3. What is the excess reactant?
   4. How many grams of excess reactant remain unreacted?

Answers:

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