Stoichiometry – Work Sheet

1. 4 FeCr2O7 + 8 K2CO3 + O2 → 2 Fe2O3 + 8 K2CrO4 + 8 CO2

(a) How many grams of FeCr2O7 are required to produce 44.0 g of CO2? [136g]

(b) How many grams of O2 are required to produce 100.0 g of Fe2O3? [10g]

(c) If 300.0 g of FeCr2O7 react, how many g of O2 will be consumed? [8.828g]

(d) How many g of Fe2O3 will be produced from 300.0 g of FeCr2O7? [88.12g]

(e) How many grams of K2CrO4 are formed per gram of K2CO3 used? [1.41g]

2. Given the reaction S + O2 → SO2

(a) How many grams of sulfur must be burned to give 100.0 g of SO2 [50g]

(b) How many grams of oxygen will be required for the reaction in part (a)? [50g]

3. 6 NaOH + 2 Al → 2 Na3AlO3 + 3 H2

(a) How much aluminum in required to produce 17.5 g of hydrogen? [156g]

(b) How much Na3AlO3 can be formed from 165.0 g of sodium hydroxide? [197.9g]

(c) How many moles of NaOH are required to produce 3.00 g of hydrogen? [119g]

(d) How many mol of hydrogen can be prepared from 1 gram of aluminum? [0.06mol]

4. BaO + H2SO4 → BaSO4 + H2O

(a) How much BaSO4 can be formed from 196.0 g of H2SO4? [466.6g]

(b) If 81.00 g of water is formed during this reaction, how much BaO was used? [690.0g]

5. NaCl + AgNO3 → AgCl + NaNO3

(a) 78.00 g of NaCl should produce how many grams of AgCl? [191.3g]

(b) How much AgCl can be produced from 107.0 g of AgNO3? [90.28g]

6. B2O3 + 3 Mg → 3 MgO + 2B

(a) How much boron can be obtained from 10.00 tonnes of B2O3? [3.105 tonnes]

(b) How much magnesium is required to produce 400.0 g of boron? [1349g]

7. SnO2 is reduced by carbon according to this reaction:

SnO2 + C → Sn + CO2

(a) How many grams of CO2 are formed when 1.00 tonne of tin is produced? [370651g = 3.71x105g]

(b) How much SnO2 is required to produce 6.00 tonnes of tin? [7617386.9g = 7.62x106g]

(c) How much tin is produced per tonne of carbon used? [9884263g = 9.88x106g]

8. 2 KMnO4 + H2SO4 → K2SO4 + Mn2O7 + H2O

(a) How many moles of Mn2O7 can be formed from 196.0 g of KMnO4? [0.6201mol]

(b) How many grams of Mn2O7 can be formed from 390.0 g of KMnO4? [273.8g]

(c) How mass of H2SO4 is needed to produce 27.00 g of water? [147.0g]