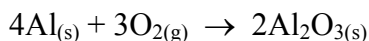
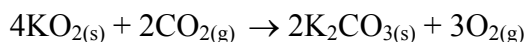


Percentage Yield and Percentage Purity

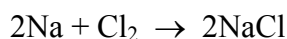
1. Consider the reaction:



- a) A 20.0 g sample of $\text{Al}_{(s)}$ reacts to produce 32.7 g of $\text{Al}_2\text{O}_{3(s)}$. What is the percentage yield of the reaction? *(1a) 86.5%*
- b) If this reaction has a percentage yield of 74.2%, what mass of $\text{Al}_2\text{O}_{3(s)}$ can be produced with 50.0 g of $\text{Al}_{(s)}$? *(1b) 70.1 g*
- c) What mass of $\text{Al}_{(s)}$ is required to make 100.0 g of $\text{Al}_2\text{O}_{3(s)}$ if the reaction has a percentage yield of 64.7%? *(1c) 81.8 g*
2. Consider the reaction:

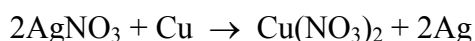


- a) A 30.0 g sample of $\text{KO}_{2(s)}$ is 59.3% pure. What mass of $\text{K}_2\text{CO}_{3(s)}$ can the sample produce? *(2a) 17.3 g*
- b) Another sample of $\text{KO}_{2(s)}$ with a mass of 150.0 g is reacted so as to produce 89.7 g of $\text{K}_2\text{CO}_{3(s)}$. What is the percentage purity of the $\text{KO}_{2(s)}$? *(2b) 61.5%*
- c) A 15.0 g sample of pure $\text{KO}_{2(s)}$ produces 7.62 g of $\text{K}_2\text{CO}_{3(s)}$. What is the percentage yield of the reaction? *(2c) 52.3%*
- d) What mass of $\text{KO}_{2(g)}$ with a purity of 64.8% is needed to make 100.0 g of $\text{K}_2\text{CO}_{3(s)}$? *(2d) 158.8 g*
3. A chemist wants to produce 50.0 g of NaCl by reacting sodium with chlorine gas according to the equation:



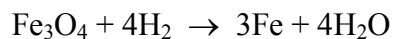
If this reaction has a percent yield of 77.3%, what mass of sodium must be reacted?
(3) 25.4 g

4. The production of silver from the reaction



has a 74.2% yield. What mass of copper is required to obtain 100.0 g of silver?
(4) 39.7 g

5. Consider the reaction:



- a) A 35.0 g sample of Fe_3O_4 is 43.8% pure. What mass of Fe can the sample produce? *(5a) 11.1 g*
- b) Another sample of Fe_3O_4 with a mass of 126.7 g is reacted so as to produce 39.3 g of Fe. What is the percentage purity of Fe_3O_4 ? *(5b) 42.9%*
- c) A 20.0 g sample of pure Fe_3O_4 produces 5.98 g of Fe. What is the percentage yield of the reaction? *(5c) 41.3%*
- d) What mass of Fe_3O_4 with a purity of 59.4% is needed to make 50.0 g of Fe? *(5d) 116.4 g*