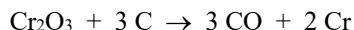


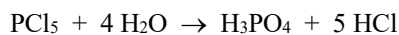
Answers

1. How many grams of carbon monoxide will be produced if 3.303×10^{10} molecules of chromium(III) oxide are consumed? (5 points)



4.609×10^{-12} g CO

2. For the balanced equation shown below, if 93.8 grams of PCl_5 were reacted with 20.3 grams of H_2O , how many grams of H_3PO_4 would be produced? (5 points)



Theoretical yield = 27.6 g H_3PO_4 , limiting reactant = water

3. Using the information in problem #2, above, calculate the percent yield for the reaction if 20.2 g of H_3PO_4 are actually produced. (4 points)

73.2%

4. The poison phosgene (COCl_2) can be neutralized with sodium hydroxide (NaOH) to produce salt (NaCl), water and carbon dioxide by the reaction: $\text{COCl}_2 + 2 \text{NaOH} \rightarrow 2 \text{NaCl} + \text{H}_2\text{O} + \text{CO}_2$

If 9.5 grams of phosgene and 9.5 grams of sodium hydroxide are reacted, what is the theoretical yield of NaCl ? If only 1.1 g of NaCl are collected, what is the percent yield of NaCl ? (6 points)

**Theoretical yield = 11 g NaCl , LR = COCl_2
% yield = 10. %**