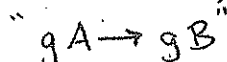


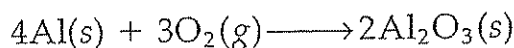
# Stoichiometry Practice



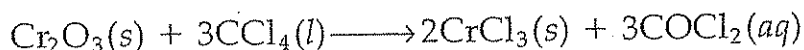
- 4.85 How many g of  $B_2H_6$  will react with 3.00 mol of  $O_2$ ?



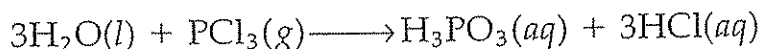
- 4.86 How many g of Al will react with 3.00 mol of  $O_2$ ?



- 4.87 Calculate the amount of  $CrCl_3$  that could be produced from 50.0 g  $Cr_2O_3$  according to the equation

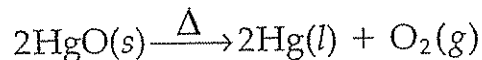


- 4.88 A 3.5-g sample of water reacts with  $PCl_3$  according to the following equation:



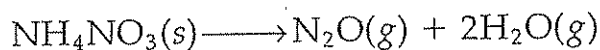
How many g of  $H_3PO_3$  are produced?

- 4.93 Joseph Priestley discovered oxygen in the eighteenth century by using heat to decompose mercury(II) oxide:



How much oxygen is produced from  $1.00 \times 10^2$  g  $HgO$ ?

- 4.94 Dinitrogen monoxide (also known as nitrous oxide and used as an anesthetic) can be made by heating ammonium nitrate:



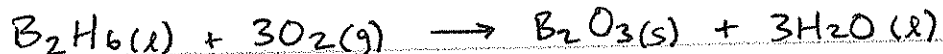
How much dinitrogen monoxide can be made from  $1.00 \times 10^2$  g of ammonium nitrate?

- 4.95 The burning of acetylene ( $C_2H_2$ ) in oxygen is the reaction in the oxyacetylene torch. How much  $CO_2$  is produced by burning 20.0 kg of acetylene in an excess of  $O_2$ ? The unbalanced equation is



Stoichiometry Practice "gA → gB"

4.85



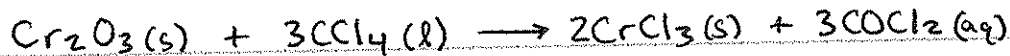
$$\frac{3.00 \text{ mol O}_2}{3 \text{ mol O}_2} \left| \frac{1 \text{ mol B}_2\text{H}_6}{1 \text{ mol B}_2\text{H}_6} \right| \frac{27.68 \text{ g B}_2\text{H}_6}{1 \text{ mol B}_2\text{H}_6} = 27.68 \text{ g} \rightarrow \boxed{27.7 \text{ g B}_2\text{H}_6}$$

4.86



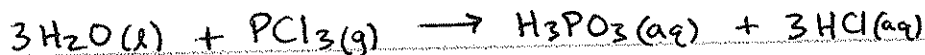
$$\frac{3.00 \text{ mol O}_2}{3 \text{ mol O}_2} \left| \frac{4 \text{ mol Al}}{1 \text{ mol Al}} \right| \frac{26.98 \text{ g Al}}{1 \text{ mol Al}} = \boxed{108 \text{ g Al}}$$

4.87



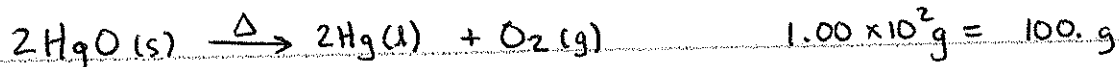
$$\frac{50.0 \text{ g Cr}_2\text{O}_3}{151.99 \text{ g Cr}_2\text{O}_3} \left| \frac{1 \text{ mol Cr}_2\text{O}_3}{1 \text{ mol Cr}_2\text{O}_3} \right| \frac{2 \text{ mol CrCl}_3}{1 \text{ mol Cr}_2\text{O}_3} \left| \frac{158.35 \text{ g CrCl}_3}{1 \text{ mol CrCl}_3} \right| = \boxed{104 \text{ g CrCl}_3}$$

4.88



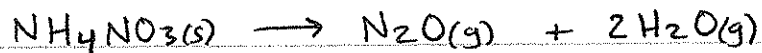
$$\frac{3.5 \text{ g H}_2\text{O}}{18.02 \text{ g H}_2\text{O}} \left| \frac{1 \text{ mol H}_2\text{O}}{3 \text{ mol H}_2\text{O}} \right| \frac{1 \text{ mol H}_3\text{PO}_3}{1 \text{ mol H}_3\text{PO}_3} \left| \frac{82 \text{ g H}_3\text{PO}_3}{1 \text{ mol H}_3\text{PO}_3} \right| = \boxed{5.3 \text{ g H}_3\text{PO}_3}$$

4.93



$$\frac{100. \text{ g HgO}}{216.59 \text{ g HgO}} \left| \frac{1 \text{ mol HgO}}{2 \text{ mol HgO}} \right| \frac{1 \text{ mol O}_2}{1 \text{ mol O}_2} \left| \frac{32 \text{ g O}_2}{1 \text{ mol O}_2} \right| = \boxed{7.39 \text{ g O}_2}$$

4.94



$$\frac{100. \text{g NH}_4\text{NO}_3}{80.06 \text{g NH}_4\text{NO}_3} \times \frac{1 \text{mol NH}_4\text{NO}_3}{1 \text{mol NH}_4\text{NO}_3} \times \frac{1 \text{mol N}_2\text{O}}{1 \text{mol NH}_4\text{NO}_3} \times \frac{44.02 \text{g N}_2\text{O}}{1 \text{mol N}_2\text{O}} = \boxed{\begin{array}{l} 55.0 \text{g} \\ \text{N}_2\text{O} \end{array}}$$

4.95



$$\frac{20.0 \text{kg}}{1 \text{kg}} \times \frac{1000 \text{g}}{1 \text{kg}} \times \frac{1 \text{mol C}_2\text{H}_2}{26.04 \text{g C}_2\text{H}_2} \times \frac{4 \text{mol CO}_2}{2 \text{mol C}_2\text{H}_2} \times \frac{44.01 \text{g CO}_2}{1 \text{mol CO}_2} = \boxed{6.76 \times 10^4 \text{g CO}_2}$$