Ammonium phosphate – $(NH_4)_3^{1+}PO_4^{3-}$

Gold (III) sulphide – $Au_2^{3+}S_3^{2-}$

Review #2 Conversions, Stoicheometry and Limiting Excess

Convert 23.2g of nitrogen gas to;

a) number of molecules

b) number of atoms

a) $23.2g\ N_2 \times \frac{1mol\ N_2}{28.02g\ N_2} \times \frac{6.022\times10^{23}\ molec\ N_2}{1mol\ N_2} = 4.99\times10^{23}\ molec\ N_2$

b) " " " $\times \frac{2\ atoms\ N}{1\ molec\ N_2} = 9.97\times10^{23}\ atoms\ N$

For the reaction between 50.0g aluminum nitrate and 50.0g of calcium sulphate, determine the max possible mass of aluminum sulphate that could form.

$$\underset{50.0g}{2Al(NO_3)_3} + \underset{50.0g}{3CaSO_4} \rightarrow \underset{?(g)}{Al_2(SO_4)_3} + 3Ca(NO_3)_2$$

$$50.0g\ Al(NO_3)_3 \times \frac{1mol\ Al(NO_3)_3}{213.00g\ Al(NO_3)_3} \times \frac{1mol\ Al_2(SO_4)_3}{2mol\ Al(NO_3)_3} \times \frac{342.15g\ Al_2(SO_4)_3}{1mol\ Al_2(SO_4)_3}$$

$= 40.2g\ Al_2(SO_4)_3$ limiting

$$50.0g\ CaSO_4 \times \frac{1mol\ CaSO_4}{136.15g\ CaSO_4} \times \frac{1mol\ Al_2(SO_4)_3}{3mol\ CaSO_4} \times \frac{342.5g\ Al_2(SO_4)_3}{1mol\ Al_2(SO_4)_3}$$

$= 41.9g\ Al_2(SO_4)_3$