Moles Practice on Masses and Volumes

Assume that all gas volumes are measured at RTP. The molar volume of a gas at RTP is 24 dm^3 or 24 000 cm^3

1 $MgCO_3(s) + 2HCl(aq) \rightarrow MgCl_2(aq) + CO_2(g) + H_2O(l)$

(a) 8.40 g of magnesium carbonate reacts with excess hydrochloric acid. Calculate the volume of carbon dioxide produced. [2]

(b) 0.200 mol of hydrochloric acid reacts with excess magnesium carbonate. Calculate the volume of carbon dioxide produced. [2]

2 $2Ag_2O(s) \rightarrow 4Ag(s) + O_2(g)$ 2.32 g of silver oxide decomposes. Calculate:

(a) the mass of silver produced [2]

(b) the volume of oxygen produced. [2]

3 $2Pb_3O_4(s) \rightarrow 6PbO(s) + O_2(g)$ 6.85 g of Pb_3O_4 decomposes. Calculate:

(a) the mass of lead oxide produced [2]

(b) the volume of oxygen produced. [2]

4 $2KClO_3(s) \rightarrow 2KCl(s) + 3O_2(g)$ 2.45 g of $KClO_3$ decomposes. Calculate:

(a) the mass of potassium chloride produced [2]

(b) the volume of oxygen produced. [2]

(c) the mass of oxygen produced. [2]