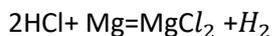


Answer on Question 83018 in General Chemistry

$$.m (\text{Mg}) = 1.10 \text{ g}$$

$$V (\text{HCl sol}) = 300 \text{ mL}$$

$$.c (\text{HCl}) = 0.800 \text{ M}$$



$$.a) n (\text{H}_2) = ?$$

$$.b) n (\text{H}_2) \text{ at STP} = ?$$

$$.c) V (\text{H}_2) \text{ at } 25^\circ\text{C} = ?$$

$$. a) \text{ Find the amount of substance of Mg } n = \frac{m}{A_r} = \frac{1.1}{24} = 0.046 \text{ mol}$$

$$\text{Find the amount of substance of HCl } n = C \times V = 0.800 \times 0.3 = 0.24 \text{ mol}$$

$$\text{Mg is limiting reagent } n (\text{H}_2) = n (\text{Mg}) = 0.046 \text{ mol}$$

$$.b) \text{ find the volume of } \text{H}_2 \text{ at STP } V = V_M \times n = 22.4 \times 0.046 = 1.03 \text{ L.}$$

The moles of hydrogen gas at STP have the same value that is received in a)

$$.c) \text{ to find the volume at } 25^\circ\text{C} \text{ or } 298 \text{ K we use Gay Lussac law (p=const)}$$

$$\frac{V_1}{T_1} = \frac{V_2}{T_2} \text{ from which } V_2 = \frac{V_1 \times T_2}{T_1} = \frac{1.03 \times 298}{273} = 1.12 \text{ L}$$

Answer provided by www.AssignmentExpert.com