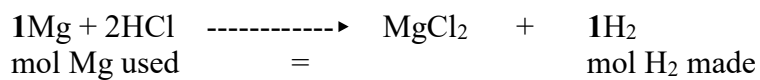


CHEMISTRY 060  
LAB 11 - Mg and HCl

Name \_\_\_\_\_  
Date \_\_\_\_\_



Data

length of Mg \_\_\_\_\_ mm

mass of Mg per metre \_\_\_\_\_ g

barometric pressure \_\_\_\_\_ mmHg

temperature (1) \_\_\_\_\_ °C

volume of H<sub>2</sub> (2) \_\_\_\_\_ mL

vapour pressure of H<sub>2</sub>O at room temperature \_\_\_\_\_ mmHg

Calculations

mass of Mg used (length of Mg(mm) × mass of 1mm Mg) \_\_\_\_\_ g

moles of Mg used (3) (mass of Mg ÷ molar mass of Mg) \_\_\_\_\_ mol

pressure of H<sub>2</sub> (4) (barometric pressure - vapour pressure of H<sub>2</sub>O) \_\_\_\_\_ mmHg

Fill out this column

$P_1$	$P_{\text{hydrogen}}$ (4)	mHg	$P_2$	Standard Pressure	760 mmHg
$V_1$	Volume of $H_2$ (2)	L	$V_2$	What we are trying to find	L
$n_1$	mol Mg used (3)	mol	$n_2$	We want the vol of 1 mol	1 mol
$T_1$	Room temp (1)	K	$T_2$	Standard temperature	273 K

$$\frac{P_1 V_1}{n_1 T_1} = \frac{P_2 V_2}{n_2 T_2}$$

solve for  $V_2$  (which is the volume of 1 mol of gas at STP)

$$V_2 = \frac{P_1 V_1 n_2 T_2}{n_1 T_1 P_2}$$

$$V_2 = \underline{\hspace{2cm}} \text{ L}$$

### **Conclusion**

The volume of 1 mole of  $H_2$  at STP is                      L

The correct value is 22.4 L

$$\% \text{ Error} = \frac{(\text{Theoretical value} - \text{Experimental value})}{(\text{Theoretical value})} \times 100$$

$$= \underline{\hspace{2cm}}$$