Page 32

Started slowing down as magnesium disappeared. Some HCl went out the stopper. Some bubbles stuck to the side of the tube and to the string. Magnesium eventually disappeared.

Calculations:

1. Number of moles of magnesium
   0.04/24.30 = 0.00165 moles of hydrogen reacted.
2. Partial pressure of hydrogen
   29.00*2.54/10 = 736.6 mmHg
   736.6-19.25 = 717.35
   717.35/760 = 0.944 atm of hydrogen
3. Volume at 1 atm
   $P_1V_1=P_2V_2$ $0.944*44.85=1.00*V_2$ $V_2=42.3mL$
4. Volume at 273.15 ^oK
   $V_1/T_1=V_2/T_2$ $42.3/(21.5+273.15)=V_2/273.15$
   $V_2=39.2mL$
5. Volume of 1 mol hydrogen at STP
   (29.2/1000)/0.00165=23.8 mol hydrogen

Conclusion:

The purpose of this lab was to calculate the molar volume of hydrogen. We achieved this by mixing a known amount of magnesium with HCl to form hydrogen gas in a eudiometer. We used he mass of the magnesium to find the moles of Mg and H_2, calculated the partial pressure of H_2, standardized it to STP, and converted that to density of H_2 at STP. It was calculated to be 23.8 mol.

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