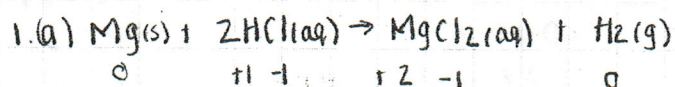


EXP. NUMBER	EXPERIMENT/SUBJECT Measurement of change in Enthalpy	DATE	14
NAME	LAB PARTNER	LOCKER/DESK NO.	COURSE & SECTION NO. L69

Prelab Questions



- The reaction is a redox reaction. Magnesium is oxidized by HCl.

$$\text{(b) } 0.0385 \text{ g} / 24.31 \text{ g/mol} = 1.58 \times 10^{-3} \text{ mol Mg}$$

$$\Delta V = \frac{\text{mass water}}{\text{density water}} - \frac{\text{mass ice}}{\text{density ice}}$$

$$\Delta V = m \left(\frac{1}{d_w} - \frac{1}{d_i} \right)$$

$$= m \left(\frac{1}{1 \text{ g/mL}} - \frac{1}{0.917 \text{ g/mL}} \right)$$

$$= m (-0.0190)$$

$$m = \Delta V \times (-11.05)$$

$$= -0.15 \text{ mL} (-11.05)$$

$$= 1.66 \text{ g of ice melted} \rightarrow \text{heat of fusion of ice.}$$

$$\Delta H_{\text{ice}} = m \cdot (333.55 \text{ J/g})$$

$$= 1.66 \text{ g} \cdot 333.55 \text{ J/g}$$

$$= 554 \text{ J}$$

$$\Delta H_{\text{ice}} = - \Delta H_{\text{Mg}} \rightarrow -0.554 \text{ kJ}$$

$$\Delta H_{\text{Mg}} = -554 \text{ J} / 1.58 \times 10^{-3} \text{ mol Mg}$$

$$= -351 \text{ kJ/mol}$$

% The enthalpy for the reaction would be -351 kJ/mol .

Purpose: To determine the enthalpy change of reaction using an ice calorimeter.

Procedure: The experiment was carried out as described in Experiment 5 (Measurement of a change in Enthalpy) of the Chemistry 1A03/1E03 Lab Manual.

Part A - Observations

Time	Volume (mL)
3:05	0.975 mL
3:06	0.975 mL
3:07	0.975 mL
3:08	0.978 mL
3:09	0.979 mL
3:10	0.979 mL
3:11:40 3:12:00	1.0
3:12:15	0.982
3:12:30	0.976
3:12:45	0.970
3:13:00	0.957
3:13:15	0.944
3:13:30	0.935
3:13:45	0.927
3:14:00	0.915
3:14:15	0.908
3:14:30	0.900
3:14:45	0.892
3:15:00	0.884
3:15:15	0.880
3:15:30	0.877
3:15:45	0.874
3:16:00	0.870
3:16:15	0.869

SIGNATURE	DATE	WITNESS/TA	DATE
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