

Reactant

first try

$$C_{M_I} = 14.987$$

$$384 \text{ mg} \rightarrow m_g = 4g$$

$$\frac{384}{24.3050} = 0.015799 \text{ mol} \times 2 \\ = 31.598$$

$$\text{Initial Temp} = 26^\circ, \text{ final temp} = 35^\circ$$

$$\text{final cup mass} = 62.24 - 14.987 \\ = 47.257g$$

Second try

$$C_{M_I} = 15.065$$

$$m_g = 362$$

$$\frac{362}{24.3050} = 0.0148405 \text{ mol} \times 2 \\ = 29.781$$

$$\text{Initial Temp} = 24^\circ, \text{ final Temp} = 30^\circ$$

final cup mass

$$45.29 - 15.065$$

$$= 30.225g$$

Third try

$$C_{M_I} = 15.285$$

$$m_g = 320$$

$$\frac{320}{24.3050} = 0.013160 \text{ mol} \times 2 \\ = 26.332$$

$$\text{Initial Temp} = 22^\circ, \text{ final Temp} = 29^\circ$$

$$\text{final mass} = 55.55 - 15.285 \\ = 40.265g$$

$$\Delta_{H_2} = \frac{-mc(T_f - T_i)}{n}$$

$$\Delta_{H_2} = \frac{-47.257(14.987)(35 - 26)}{0.1(1000)}$$

$$\Delta_{H_2} = -63.741659 \text{ kJ/mol}$$