

CHM 151
Recitation #6, 8 October 2008

1. What **volume** of a 0.50 M HCl solution is needed to neutralize completely 10.0 mL of a 0.20 M Ba(OH)₂ solution?

2. A chemical reaction that absorbs heat from the surroundings is said to be _____ and has a _____ value of ΔH .

a) endothermic, positive b) endothermic, negative c) exothermic, negative
d) exothermic, positive e) exothermic, neutral

3. Given the three statements below, which answer is **correct**?

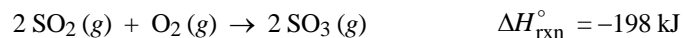
I) An exothermic reaction releases heat to the surroundings.

II) The sign of ΔH for an exothermic reaction is positive.

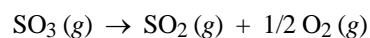
III) For an endothermic reaction to be carried out, heat must be supplied from the surroundings.

a) I and II are true, III is false b) II and III are true, I is false c) I, II, and III are true
d) I, II, and III are false e) I and III are true, II is false

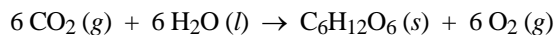
4. Given the thermochemical equation:



What is the **enthalpy change** (ΔH°) for the decomposition of one mole of SO₃?

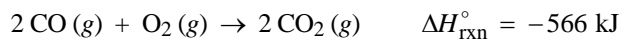


5. Calculate $\Delta H_{\text{rxn}}^{\circ}$ for the following reaction:

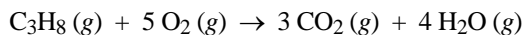


| Compound | ΔH_f° |
|--|----------------------|
| $\text{CO}_2(g)$ | -393.5 kJ/mol |
| $\text{H}_2\text{O}(g)$ | -241.8 kJ/mol |
| $\text{H}_2\text{O}(l)$ | -285.8 kJ/mol |
| $\text{C}_6\text{H}_{12}\text{O}_6(s)$ | -1274.5 kJ/mol |

6. Given the balanced equation below, what is the ΔH for the combustion of 19.0 grams of $\text{CO}(g)$ in an excess of oxygen? [Molar mass (CO) = 28.01 g/mol]



7. Calculate ΔH° for the reaction



from the following data:



$$\text{Molarity} = \frac{\text{moles solute}}{\text{L of solution}}$$

$$\Delta H_{\text{rxn}}^{\circ} = \sum n\Delta H_f^{\circ}(\text{products}) - \sum n\Delta H_f^{\circ}(\text{reactants})$$