Honors Chemistry Hour\_\_\_\_\_ Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
Dr. Wexler
Molar Enthalpy Change in Chemical Reactions Worksheet 2
Date:

1. Calculate the energy absorbed when 2000 g of dry ice (CO2) sublimates. The molar enthalpy of sublimation is 8.647kJ/mol.  **Hint: convert mass to moles, then calculate kJ absorbed using dimensional analysis.**
2. How much energy is required to melt a 9072 g bag of ice at 0°C? The ΔHfusion of ice is +6.009kJ/mol. **Hint: convert mass to moles, then calculate kJ absorbed using dimensional analysis.**

3) How much enthalpy/heat is transferred when 50.0 g of ammonia (NH3) reacts with

excess oxygen according to the following equation:

4NH3 + 5O2 🡪 4NO + 6H2O ΔH = -905.4kJ

**Hint: convert mass NH3 to moles, then calculate kJ released using dimensional analysis given -905.4kJ energy released per 4 moles NH3.**

4) According to the following reactions, would the burning of 5.50 g of methane (CH4) or

5.50 g propane (C3H8) release more heat?

C3H8(g) + 5O2(g) → 3CO2(g) + 4H2O(g) ΔΗ = -2043 kJ

CH4(g) + 2O2(g) → CO2(g) + 2H2O(g) ΔΗ = -890.0kJ

**Hint: convert mass to moles for both methane and propane. Then calculate kJ/mole for each and compare: which is a larger negative value?**