

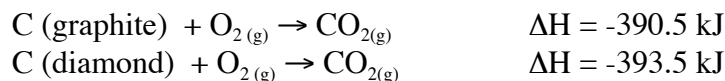
We will not be performing the "Calorimetry" lab as scheduled.

Instead, you will be required to complete the following questions on your own or with a study partner(s). You can type the answers or write them *legibly* on paper

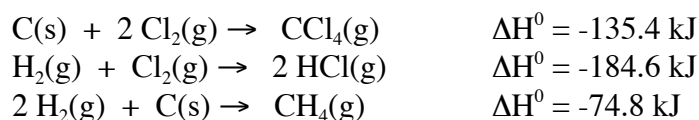
This assignment is due **at the time of your regularly scheduled class presentation** (November 17 - 19, depending on your lab section.) Your lab will be late if not turned in at the correct time.

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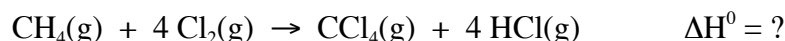
1. A metal sample weighing 45.23 g is heated to 100.00 °C. It is placed in 38.64 g of water in a calorimeter at 25.25 °C. At equilibrium, the temperature of the water and metal is 33.05 °C. Calculate the specific heat of the metal.
2. When 0.5000 g of Zn are added to 50.00 mL of 6.00 M HCl in the coffee cup calorimeter that was used in question 1, the temperature of the solution rises from 20.00 °C to 32.56 °C. Using the assumptions recommended in the Calorimetry lab (*page 50*) concerning the HCl density and specific heat, calculate  $q_{\text{Zn}}$  and  $\Delta H$  for the reaction.
3. Calculate the enthalpy change for the allotropic transformation of graphite into diamond using the following data:



4. Using the following equations:



Calculate the standard enthalpy of reaction for the process:



5. Find  $\Delta H_4$  using the following information:

