

Bonus Homework 1

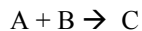
Distributed: Wednesday, January 31, 2001

Due: Monday, February 5, 2001

This problem uses a special version of the IrYdium Chemical Laboratory Simulation, that you can find on the assignment page of the course web site: <http://ir.chem.cmu.edu/chem106/assignments/> Please see the User Guide on the website, for basic instructions on how to use the laboratory. If you have any questions or experience any problems, please send email to help@ir.chem.cmu.edu. *Note that this version of the simulation can only be run from a Windows PC.*

The stockroom of the virtual laboratory contains a cabinet called "Homework 2 Solutions". Different concentrations of Reagent A and Reagent B have been placed into this cabinet. You will use these solutions to answer the questions below.

- 1) (3 points) Use the lab to measure ΔH° for the reaction that occurs when reagents A and B are combined:



Please note that each prepared flask contains 100 mL of solution. Also, you may assume the heat capacity of the aqueous solutions is equal to the heat capacity of water 4.18 J/g °K

Please describe your complete procedure and the key quantities you measure. Points are based upon your final answer and whether or not you explain your procedure in sufficient detail for us to reproduce your actions. You are not graded on the method you used: all approaches that meet the above goal are equally valid.

- 2) (3 points) Using water and the reagents provided in the lab, create two solutions such that when you mix them together, the resulting solution has an initial temperature of 50°C.

Please describe your complete procedure and the key quantities you measured. Points are based upon your final answer and whether or not you explain your procedure in sufficient detail for us to reproduce your actions. You are not graded on the method you used: all approaches that meet the above goal are equally valid.