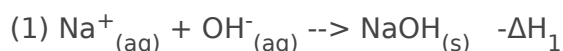


10. Additivity of Heats of Reaction: Hess's Law

Purpose:

To practice applying Hess's Law using a coffee cup calorimeter and confirming that the heat of one reaction should be equal to the sum of the heats for the other reactions.

Pre-Lab:



Procedure:

1. Wear protective equipment.
2. Open Vernier Graphical Analysis. Connect the temperature probe.
3. Use a utility clamp and a slit stopper to suspend the temperature probe from a ring stand.
4. Place a Styrofoam cup into a 250mL beaker. Measure out 100.0mL of distilled water into the cup. Lower the temperature probe into the solution.
5. Weigh out around 2 grams of solid sodium hydroxide and record the mass to the nearest 0.01g.
6. Begin collecting data and obtain the initial temperature, t_1 . After obtaining the initial temperature, add the NaOH to the cup. Stir continuously until the temperature has maximized and has begun to drop. Record the maximum temperature, t_2 . After 3.3-4 minutes, data collection is completed.
7. Graph temperature vs. time(done automatically). Examine the data points along the curve to verify the values of t_1 and t_2 .