Chemistry
Lab: Heat of Solution

Procedure

1) Add 100.0 mL water to a Styrofoam cup. The Styrofoam cup will serve as a calorimeter. (1.00 mL of water = 1.00 grams)
2) Mass a clean, dry beaker. Record the mass of 0.01g.
3) Add about 8 g of ammonium nitrate, NH_4NO_3, to the beaker. Record the mass to 0.01g,}
4) Determine and record the temperature of the water in the calorimeter to 0.1^oC.
5) Add NH_4NO_3 to calorimeter water and gently stir with the thermometer. Record the lowest temperature reached by the solution to 0.1^oC.
6) Pour solution down drain and rinse the cup and thermometer several times with tap water.

Data and Calculations:

Mass of beaker + ammonium nitrate _____
Mass of beaker _____
Mass of ammonium nitrate _____

Mass of water _____

Mass of ammonium _____
Mass of solution _____

Specific heat of solution 1.00 cal/g^{o}C
Initial temperature _____
Final temperature _____
Change in temperature _____

Quantity of heat absorbed by solution ($q = mc\Delta t$) _____cal
Quantity of heat per gram of ammonium nitrate _____cal/g
Quantity of heat absorbed by solution _____J
Quantity of heat per gram of ammonium nitrate _____J/g
Molar mass of ammonium nitrate _____g/mol
Moles of ammonium nitrate (moles = mass/molar mass) _____mol
Quantity of heat per mole of ammonium nitrate _____cal/mol
Quantity of heat per mole ammonium nitrate _____J/mol
Literature value for heat of solution _____
Percent error _____%