

Heat of Combustion Lab Report

Below is an outline of the report. Arrange the information in the following order in a Word document. Do all calculations in calories.

1. Write the balanced equation for the combustion of sugar and show the relationship of the Internal Energy change and the Enthalpy change.
2. From an Excel spreadsheet generate a table which has all your raw data. This table should include the scale error of all instruments and all reference values.
3. From an Excel spreadsheet generate a table which shows all your calculated data. Be careful with the algebraic signs of the calculated quantities.
 - Mass of benzoic acid pellet
 - Net heat generated by benzoic acid combustion (including fuse wire)
 - Temperature change
 - Heat capacity of calorimeter
 - Temperature change for sugar
 - Mass of sugar
 - Heat generated by sugar (don't forget to subtract fuse wire)
 - Internal Energy change per mole for sugar combustion
 - Calculation of % error for sugar
 - Temperature change for cereal
 - Heat generated by cereal (don't forget to subtract fuse wire)
 - Internal Energy change per gram for cereal combustion
 - Calculation of % error for cereal

Show each calculation above. You will want to use Word's equation editor for some of the equations.

4. From an Excel spreadsheet generate a table which lists and/or calculates your error.
 - Propagated error for the heat capacity of the calorimeter giving the square errors in separate columns for mass of benzoic acid and ΔT
 - Propagated error for the internal energy change per mole for sugar giving the square errors in separate columns for C, ΔT , and mass of sugar
 - Propagated error for the internal energy change per gram for the cereal giving the square errors in separate columns for C, ΔT , and mass of cereal.

Show each calculation above. You will want to use Word's equation editor for these equations.

5. On the basis of the above tables generate a summary table showing the best values for the Internal Energy change for the combustion of sugar and the cereal.