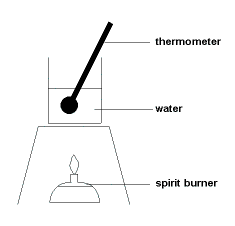
**Enthalpy of combustion experiment**

*Adapted from Atkinson, J. & Hibbert, C. (2000). AS Chemistry for AQA. Oxford: Heinemann.*



**Data table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Fuel A | Fuel B | Fuel C | Fuel D |
| Initial mass of container (spirit lamp) |  |  |  |  |
| Initial mass of spirit lamp + fuel |  |  |  |  |
| Final mass of spirit lamp + fuel |  |  |  |  |
| Mass of fuel burned (mf) |  |  |  |  |
| Volume of water in beaker |  |  |  |  |
| Mass of water in beaker (mw) |  |  |  |  |
| Initial temperature of water |  |  |  |  |
| Final temperature of water |  |  |  |  |
| Temperature rise (ΔT) |  |  |  |  |
| Time for which the fuel was burning |  |  |  |  |
| Heat energy released by the combustion of the fuel |  |  |  |  |
| The enthalpy of combustion of the fuel |  |  |  |  |
| Cost of the fuel used |  |  |  |  |

**Specific heat capacity, c, of water:** It takes 4.2 joules of heat energy to increase the temperature of one gram of water by one degree. This value is known as the specific heat capacity of water.

Dependent variable:

Independent variable:

Controlled variable:

Heat energy gained by the water is given by: **qw = mw.c.ΔT**

The heat gained by the water is equal to the heat released by the fuel. Therefore the heat energy released by the combustion of one mole of the fuel under investigation can be calculated using qw, as long as the mass of fuel used is known.