**Representing Enthalpy Changes**

Method:

1. Thermochemical Equations with Energy terms

* include the molar energy in the equation
* exothermic reactions have a product molar enthalpy
* endothermic reactions have a reactant molar enthalpy

Example: ΔHcomb of butane = -2871 kJ/mol

Write the balanced equation including the ΔHcomb

2C4H10(g) + 13O2(g) 🡪 8CO2(g) + 8H2O(l) + 5742 kJ

ΔHcomb = 2 mol x -2871 kJ/mol

= - 5742 kJ

1. Thermochemical Equations with ΔH symbols

* you can write the Thermochemical equation and then write the ΔH value beside it
* Remembering negative for exothermic and positive for endothermic

Example:

Molar enthalpy of combustion for SO2 is ΔH = -98.9 kJ/mol

2SO2 + O2 🡪 2SO3 ΔH = -197.8kJ

ΔH = 2 mol x -98.9 kJ/mol

= -197.8 kJ

1. Molar Enthalpy of Reaction

* the standard molar enthalpy is the energy change associated with one mol of substance at 100 kPa and 250C
* write the Thermochemical equation in terms of one molecule of the substance

Example:

C4H10(g) + 13/2 O2(g) 🡪 4CO2(g) + 4H20(g)

SO2 + ½ O2 🡪 SO3

Molar Enthalpy of Reaction (page )

1. Potential Energy Diagrams

* energy transferred can be communicated graphically using a potential energy