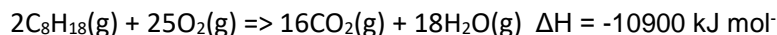


Thermochemical equations

Lesson 1



What does a thermochemical equation reveal about a reaction?

i) What is enthalpy?

ii) What is enthalpy change (ΔH)?

iii) Stoichiometric ratio of a balanced chemical equation

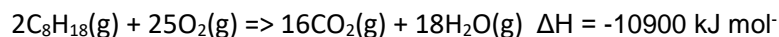
iv) States

v) Energy output or input (depending on sign)
negative sign indicates

positive sign indicates

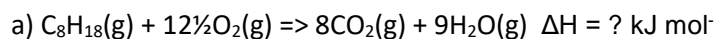
vi) Amount of energy is dependent on the mol of the equation
For example

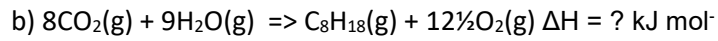
1) Consider the thermochemical equation for the combustion of octane shown below.



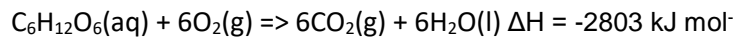
i. It shows that for 2 mol of octane that reacts _____ 10900 kJ of energy is _____

ii. Calculate the ΔH for the following equations

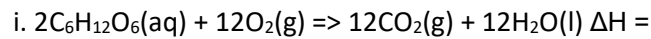


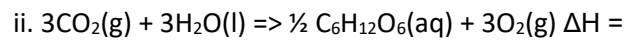


c) Consider the equation below

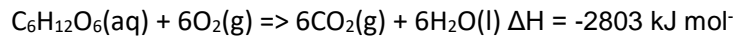


What is the ΔH for the following equations?





d) What is the amount of energy given off when 18.0 grams of glucose (Molar mass 180.2 amu) burns completely in oxygen gas according to the equation below?

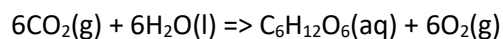


e) What amount of energy, in kJ, is released if 8.80 grams of carbon dioxide is produced when glucose burns in excess oxygen?

f) What amount of energy, in kJ, is released if 3.60 grams of water is produced when glucose burns in excess oxygen?

g) What amount of energy, in kJ, is released if 3.60 grams of glucose reacts completely?

h) Consider the equation below.



i. What is the ΔH of the thermochemical equation above ?

ii. Is energy absorbed or released?

iii. What amount of energy, is involved if 36.0 grams of glucose (molar mass = 180.2 amu) is formed?
