

Thermochemical Equation

Q1.

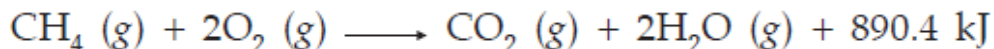
i. What is Thermochemical Equation?

Ans.:

- The chemical equation that also provides the AMOUNT OF HEAT
 - released or
 - absorbed
- The amount of heat is expressed in joules (J) or kilo Joules (kJ).

ii. Write the example of thermochemical equation where heat is released.

Ans.: The following is the example of thermochemical equation where *heat is released*.



- Here, methane (CH₄) burns in oxygen (O₂) to produce carbon dioxide (CO₂) and water (H₂O).
- And in that reaction, 890.4 kJ of heat is released.

iii. Write the example of thermochemical equation where heat is released.

Ans.: The example of thermochemical equation where *heat is absorbed* is



- Nitrogen (N₂) combines with oxygen (O₂) to produce nitrogen monoxide (NO) and in that reaction, 180.7 kJ of heat is absorbed.

Q2. What is the synonym of 'Release'?

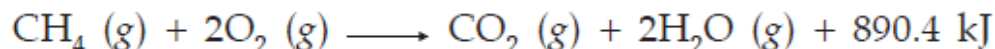
Ans.: Lose or evolved

Q3. What is the synonym of 'Absorb'?

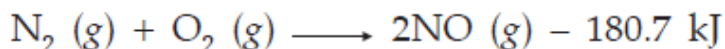
Ans.: Gain

Q4. Write the Example of heat released or evolved.

Ans.:



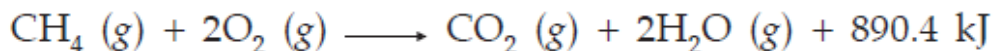
Q5. Write the Example of heat absorbed



Q6. What is exothermic reaction?

Ans.: The reaction in which **heat is released, evolved or lost.**

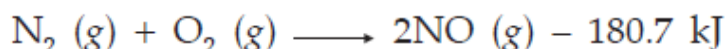
Example,



Q7. What is endothermic reaction?

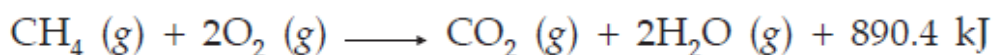
Ans.: The reaction in which **heat is absorbed or gained.**

Example,



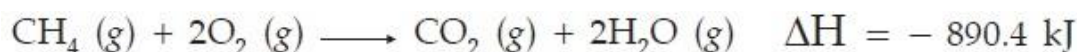
Q8. Write the two types of thermochemical equation to represent exothermic reaction.

Ans.: In exothermic reaction the heat released or lost is represented with **positive sign (+)**



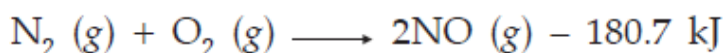
OR

It is also represented with change in enthalpy (ΔH) and the sign of energy released becomes **negative sign (-)**



Q9. Write the two types of thermochemical equation to represent endothermic reaction.

Ans.: In endothermic reaction the heat absorbed or gained is represented with **negative sign (-)**



OR

It is also represented with change in enthalpy (ΔH) and the sign of energy gained becomes **negative sign (+)**



Q10. What is enthalpy (H) unit?

Ans.: Enthalpy is a unit for heat energy and it is represented as 'H'.

Q11. What is change in enthalpy (ΔH)?

Ans.: The change in enthalpy is the difference between the enthalpy of product and enthalpy of reactant.

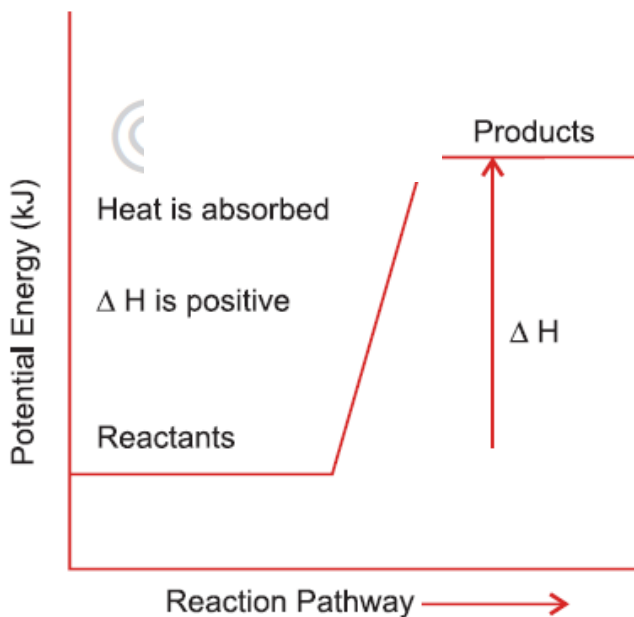
i.e. $\Delta H = H_P - H_R$

where, H_P = Enthalpy of Product

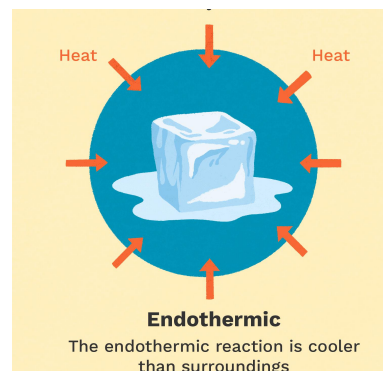
H_R = Enthalpy of Reactant

Q12. What is energy diagram for Endothermic Reaction?

The reaction in which heat is **absorbed** or **gained**.

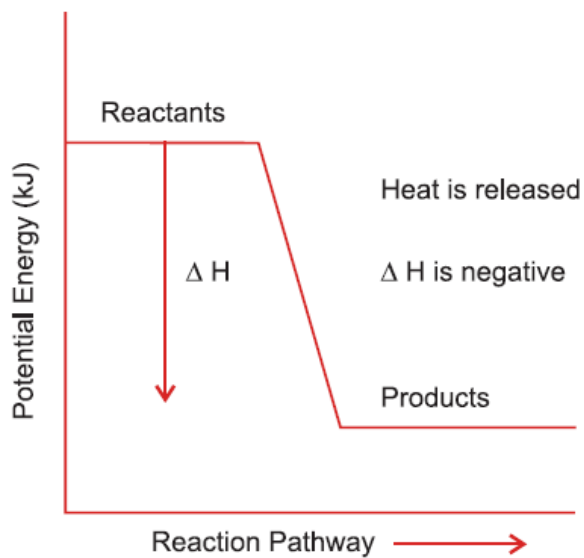


(a) Endothermic Reaction

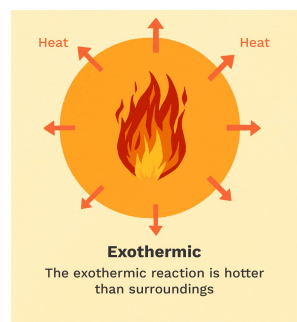


Q13. What is energy diagram for Exothermic Reaction?

The reaction in which **heat** is **released**, **evolved** or **lost**.



(b) Exothermic Reaction



ThoughtCo.