Thermochemistry

AP Chemistry · Vocabulary in context

Word	Example
Thermochemistry /ˈθɜːməkemɪstri/	**Thermochemistry** studies heat in chemical reactions.
exothermic /egzəˈðɜːmɪk/	Burning is **exothermic**: it gives out heat.
surroundings /səˈraʊndɪŋz/	The heat goes into the **surroundings**, so the beaker feels warm.
endothermic /ˌendəʊˈθɜːmɪk/	Melting ice is **endothermic**: it takes in heat.
Breaking bonds	**Breaking bonds** takes in energy.
forming bonds	**Forming bonds** gives out energy.
system /ˈsɪstəm/	The **system** is the reaction; everything else is the surroundings.
energy diagram	An **energy diagram** shows whether a reaction gives out or takes in heat.
reactants /rɪˈæktənts/	Only **reactants** in the slow step appear in the rate equation.
products /ˈprɒdʌkts/	Burning carbon gives one of the **products**: carbon dioxide.
enthalpy change /enˈθælpi tʃeɪndʒ/	The **enthalpy change** of this reaction is -50 kJ/mol. -50 kJ/mol
Heat /hiːt/	**Heat** flows from hot objects to cold ones.

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thermal equilibrium /ˈθɜːml ˌiːkwɪˈlɪbrɪəm/	The tea and the cup reach **thermal equilibrium** at the same temperature.
Energy is conserved	**Energy is conserved**: it is never made or destroyed.
isolated /ˈaɪsəleɪtɪd/	The **isolated** sphere has no other charges near it.
specific heat /spəˈsɪfɪk hiːt/	Water has a high **specific heat**: it warms up slowly.
Calorimetry /ˌkælɔːˈrɪmətri/	**Calorimetry** measures heat changes.
insulated	A foam cup is **insulated**, so little heat escapes.
calorimeter	A **calorimeter** measures the heat from a reaction.
molar heat capacity	The **molar heat capacity** is the heat to warm one mole by 1 °C. $1\ °C$
phase change /feɪz tʃeɪndʒ/	Melting is a **phase change**.
melting /ˈmeltɪŋ/	**Melting** turns ice into water.
boiling /ˈbɔɪlɪŋ/	During **boiling**, bubbles form all through the water.
intermolecular forces /ˌɪntəməˈlekjʊlə ˈfɔːsɪz/	Weak **intermolecular forces** let a gas boil at a low temperature.
kinetic energy /kɪˈnetɪk ˈenədʒi/	A fast car has a lot of **kinetic energy**.
heating curve /ˈhiːtɪŋ kɜːv/	A **heating curve** shows temperature rising as a solid is heated.

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enthalpy of reaction /enˈθælpi ɒv rɪˈækʃn/	The **enthalpy of reaction** is the heat change for the reaction.
constant pressure	At **constant pressure**, the heat change equals ΔH.
state function /steɪt ˈfʌŋkʃn/	Enthalpy is a **state function**: only the start and end matter.
bond enthalpies	Use **bond enthalpies** to estimate ΔH.
standard enthalpy of formation /ˈstændəd enˈθælpi ɒv fɔːˈmeɪʃn/	The **standard enthalpy of formation** of an element is zero.
elements /ˈelɪmənts/	Oxygen gas and carbon are **elements**.
standard state	The **standard state** of oxygen is a gas.
combustion /kəmˈbʌstʃn/	**Combustion** of petrol powers a car.
Hess's law /ˈhesɪz lɔː/	**Hess's law** says the enthalpy change is the same by any route.

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