Thermodynamics and Electrochemistry

AP Chemistry · Vocabulary in context

Word	Example
Entropy /'entrəpi/	**Entropy** measures how spread out energy and matter are.
dispersal	Gases have high entropy because of the **dispersal** of their particles.
vaporisation /ˌveɪpəraɪ'zeɪʃn/	**Vaporisation** turns water into steam.
solvation	In **solvation**, water molecules surround each dissolved ion.
absolute entropy	The **absolute entropy** of a substance is never negative.
Gibbs free energy /gɪbz fri: 'enədʒi/	A reaction can happen if the **Gibbs free energy** change is negative.
thermodynamically favorable /ˌθɜ:məʊdaɪ'næmɪkli 'feɪvərəbl/	A **thermodynamically favorable** reaction has a negative ΔG. ΔG
activation energy /ˌæktɪ'veɪʃn 'enədʒi/	A match gives the **activation energy** to start the fire.
Thermodynamics /ˌθɜ:məʊdaɪ'næmɪks/	**Thermodynamics** tells us whether a reaction can happen.
kinetics /kɪ'netɪks/	**Kinetics** tells us how fast a reaction happens.
kinetic control	Under **kinetic control**, a favourable reaction is too slow to see.

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equilibrium constant /ˌi:kwɪ'lɪbrɪəm 'kɒnstənt/	A large **equilibrium constant** means mostly products.
dissolving	**Dissolving** ammonium nitrate in water makes the water colder.
coupling	**Coupling** joins an unfavourable reaction to a favourable one.
intermediate /ˌɪntə'mi:dɪət/	An **intermediate** forms in one step and is used up in the next.
Redox reactions	**Redox reactions** move electrons from one substance to another.
galvanic (voltaic) cell /gæl'vænɪk sel/	A **galvanic (voltaic) cell** makes electricity from a redox reaction.
electrolytic cell /ɪˌlektrə'lɪtɪk sel/	An **electrolytic cell** uses electricity to drive a chemical change.
oxidation /ˌɒksɪ'deɪʃn/	**Oxidation** is the loss of electrons.
anode /'ænəʊd/	The **anode** is the positive electrode.
reduction /rɪ'dʌkʃn/	**Reduction** is the gain of electrons.
cathode /'kæθəʊd/	Electrons leave the hot **cathode**.
salt bridge /sɒlt brɪdʒ/	A **salt bridge** joins the two half-cells.
cell potential /sel pə'tenʃl/	The **cell potential** is the voltage between two electrodes.

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standard reduction potentials	**Standard reduction potentials** show how easily species gain electrons.
Faraday constant /ˈfærədeɪ ˈkɒnstənt/	The **Faraday constant** is the charge on one mole of electrons.
spontaneous /spɒnˈteɪnɪəs/	A **spontaneous** reaction can happen by itself, without energy being put in all the time.
Nernst equation /nɜːnst ɪˈkweɪʒn/	The **Nernst equation** shows how the electrode potential changes with concentration.
Le Chatelier's principle /lə ˈʃætlɪəz ˈprɪnsɪpl/	**Le Chatelier's principle** predicts how an equilibrium moves.
electrolysis /ɪlekˈtrɒləsɪs/	**Electrolysis** of brine makes chlorine.
Faraday's law /ˈfærədeɪz lɔː/	**Faraday's law** says faster change gives a bigger e.m.f.
half-reaction	Write a **half-reaction** for each electrode.

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