Reactivity 3.4 · Electron-pair sharing reactions

International Baccalaureate · IB Diploma · Chemistry · HL · Vocabulary in context

Word	Example
nucleophile /ˈnjuːklɪəfaɪl/	The hydroxide ion acts as a **nucleophile**.
electrophile /ɪˌlektrəʊˈfaɪl/	Bromine acts as an **electrophile** when it attacks a double bond.
heterolytic fission /ˌhetrəˈlɪtɪk ˈfɪʃn/	In **heterolytic fission**, one atom takes both electrons from the bond.
curly arrow /ˈkɜːli ˈærəʊ/	A **curly arrow** shows where a pair of electrons moves.
halogenoalkane /ˈheɪləʊdʒnəʊlkeɪn/	Bromoethane is a **halogenoalkane**.
nucleophilic substitution /ˌnjuːklɪəˈfɪlɪk ˌsʌbstɪˈtjuːʃn/	A halogenoalkane reacts with hydroxide ions by **nucleophilic substitution**.
leaving group /ˈliːvɪŋ gruːp/	A **leaving group** takes a bonding electron pair when it departs.
electrophilic addition /ɪˌlektrəʊˈfɪlɪk əˈdɪʃn/	Ethene reacts with bromine by **electrophilic addition**.
functional group /ˈfʌŋkʃənl gruːp/	The –OH **functional group** makes a compound an alcohol. –OH
Lewis acid	A **Lewis acid** accepts an electron pair.
Lewis base	A **Lewis base** donates an electron pair.

exercises.lol exercises.com.cn

Word	Example
coordination bond	A **coordination bond** uses two electrons from the same atom.
ligand /ˈlɪgænd/	Water is a **ligand** in [Cu(H2O)6]2+. [Cu(H2O)6]2+
complex ion /ˈkɒmpleks ˈaɪɒn/	[Cu(H2O)6]2+ is a **complex ion**. [Cu(H2O)6]2+
coordination number /kəʊˈɔːdɪneɪʃn ˈnʌmbə/	[Cu(H2O)6]2+ has a **coordination number** of 6. [Cu(H2O)6]2+ 6
primary /ˈpraɪməri/	In a **primary** alcohol, the –OH carbon is joined to one other carbon. –OH
tertiary /ˈtɜːʃʃəri/	In a **tertiary** alcohol, the –OH carbon is joined to three other carbons. –OH
transition state /trænˈsɪʃn steɪt/	The **transition state** is at the top of the energy curve.
stereospecific	A **stereospecific** reaction always gives one particular shape of product.
inversion of configuration	**Inversion of configuration** turns the molecule inside out, like an umbrella in the wind.
carbocation /ˌkɑːbəˈkeɪʃn/	A **carbocation** has a positive charge on a carbon atom.
rate-determining step /reɪt dɪˈtɜːmɪnɪŋ step/	The slowest step is the **rate-determining step**.
Markovnikov's rule /ˈmɑːkəvnɪkɒvz ruːl/	**Markovnikov's rule** predicts the main product of adding HBr to propene. HBr

exercises.lol exercises.com.cn

Word	Example
delocalized /dɪˈlɒkəlaɪzd/	**Delocalized** electrons spread over several atoms.
electrophilic substitution /ɪˌlektrəʊˈfɪlɪk ˌsʌbstɪˈtjuːʃn/	Benzene reacts by **electrophilic substitution**.
nitronium ion	The **nitronium ion**, $NO2+$, attacks benzene. $NO2+$

exercises.lol exercises.com.cn