Polymerisation

A-Level Chemistry · Vocabulary in context

Word	Example
condensation polymerisation /kɒndenˈseɪʃn ˌpɒlɪməraɪˈzeɪʃn/	**Condensation polymerisation** gives off water each time two monomers join.
chain	Monomers join end to end into a long **chain**.
• **small molecule** /smɔːlˈmɒlɪkjuːl/	Water is the **small molecule** lost in making a polyester from a diol.
reactive groups	Each monomer needs two **reactive groups** so the chain can grow.
polyester /ˌpɒlɪˈestə/	Polyester is used to make clothes; each **polyester** chain has many ester links.
ester links	A polyester has **ester links** along its chain.
diol /dɪˈɒl/	Ethane-1,2-diol is a **diol**: it has two –OH groups. -1,2- –OH
dicarboxylic acid /ˌdɪkɑːbɒkˈsɪlɪk ˈæsɪd/	A **dicarboxylic acid** has two –COOH groups. –COOH
dioyl chloride	A **dioyl chloride** reacts faster than a dicarboxylic acid and gives off HCl. HCl
hydroxycarboxylic acid	A **hydroxycarboxylic acid** can form a polyester on its own.
poly(lactic acid)	**Poly(lactic acid)** is a plastic made from plants that breaks down naturally.
polyamide /ˌpɒlɪˈeɪmaɪd/	Nylon is a **polyamide**.

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amide links	Nylon has **amide links** along its chain.
diamine /ˈdaɪəmaɪn/	A **diamine** has two –NH2 groups. –NH2
aminocarboxylic acid	An **aminocarboxylic acid** has both $–NH_2$ and –COOH groups. $–NH_2$ –COOH
amino acid /əˈmiːnəʊ ˈæsɪd/	Glycine is the simplest **amino acid**.
proteins /ˈprəʊtiːnz/	Meat, eggs and beans are rich in **proteins**, which are made from amino acids.
nylon-6,6	**Nylon-6,6** is used to make ropes and clothes.
repeat unit /rɪˈpiːt ˈjuːnɪt/	The **repeat unit** of poly(ethene) is –CH2–CH2–. –CH2–CH2–
monomer /ˈmɒnəʊmə/	Ethene is the **monomer** of poly(ethene).
C=C double bond	A monomer with a **C=C double bond** forms an addition polymer. C=C
addition polymerisation /əˈdɪʃn ˌpɒlɪməraɪˈzeɪʃn/	Ethene molecules join by **addition polymerisation**.
functional groups	A condensation monomer has two **functional groups**.
poly(alkene) /ˈpɒlɪ/	A **poly(alkene)** such as poly(ethene) is made from alkenes.
inert /ɪˈnɜːt/	Poly(ethene) is chemically **inert**.
non-polar /nɒn ˈpəʊlə/	**Non-polar** C–H bonds are not attacked by water or enzymes. C–H

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biodegrade /ˌbaɪəʊdɪˈgreɪd/	Poly(alkene)s **biodegrade** very slowly.
photodegradable /ˌfəʊtəʊdɪˈgreɪdəbl/	**Photodegradable** plastics break down in sunlight.
biodegradable /ˌbaɪəʊdɪˈgreɪdəbl/	A **biodegradable** plastic is broken down by bacteria.
alkaline /ˈælkəlaɪn/	**Alkaline** hydrolysis breaks the ester links in a polyester.
hydrolysis /haɪˈdrɒləsɪs/	**Hydrolysis** uses water to break a large molecule into smaller ones.

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