



Slide 8: Examples of addition polymerisation

- ETHENE
- PROPENE
- TETRAFLUOROETHENE
- CHLOROETHENE
- POLY(ETHENE)
- POLY(PROPENE)
- POLY(CHLOROETHENE)
- POLYVINYLCHLORIDE PVC
- POLY(TETRAFLUOROETHENE)
- PTFE “Teflon”
- MONOMER REPEATING UNIT



Slide 9: Preparation

Many are prepared by a free radical process involving high pressure, high temperature and a catalyst (O₃ or peroxide). The catalyst readily breaks up to form radicals (which initiate a chain reaction).

Properties

Physical varied by changing the reaction conditions (pressure, temperature etc).

Chemical have chemical properties based on the functional groups in their structure.

This means it is resistant to chemical attack and non-biodegradable.

- Addition _____

Slide 10: Although polymers derived from alkenes are invaluable to modern society, their disposal creates widespread problems.

- they are unreactive to most chemicals and bacteria (non-biodegradable)
- if they are just discarded they add to the landfill problem

recycling high cost of collection and reprocessing

burn waste saves on landfill sites and produces energy

toxic fumes (HCl) can be removed from burning chlorinated polymers

feedstock use the waste for the production of useful organic compounds.

New technology can convert waste into hydrocarbons. Hydrocarbons can then be turned back into polymers.

- Problems with polymers

Slide 11: Practice time!