

# CAIE Chemistry A-level

## Topic 20 - Polymerisation

### Flashcards

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# What is addition polymerisation?



## What is addition polymerisation?

The joining together of unsaturated alkene monomers to form a long chain polymer. No other products are formed so the atom economy is 100%.



# What is a repeat unit?



# What is a repeat unit?

The part of a polymer whose repetition would produce the complete polymer chain.



# How do alkenes undergo addition polymerisation?

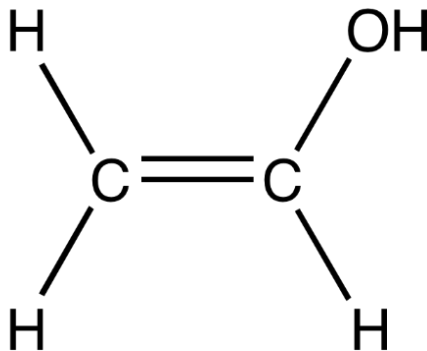


How do alkenes undergo addition polymerisation?

The  $\pi$  bond breaks and each electron goes towards forming a  $\sigma$  bond with an adjacent monomer unit.

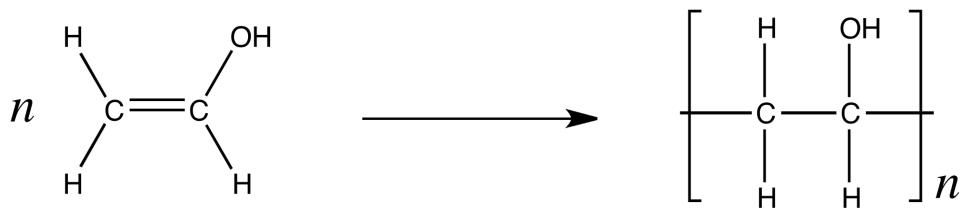


Deduce the repeat unit of the addition polymer formed from the monomer below





Deduce the repeat unit of the addition polymer formed from the monomer below

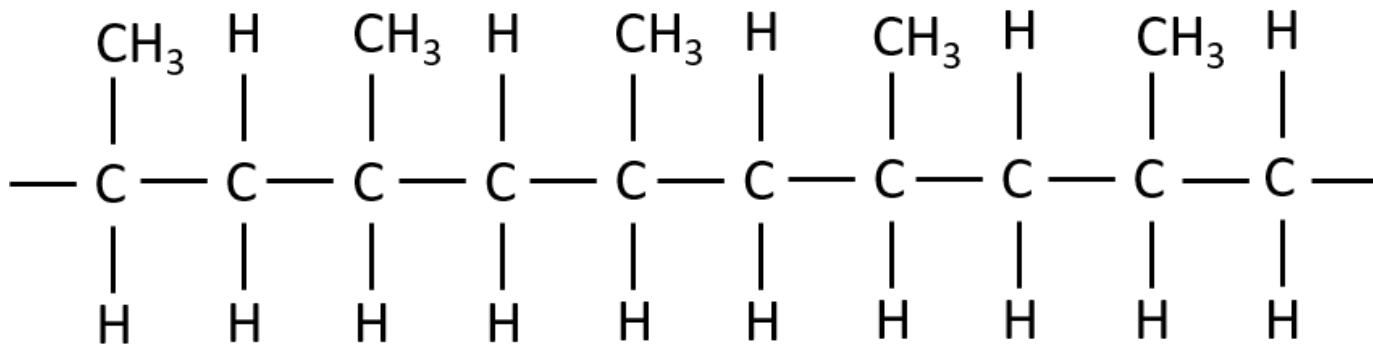


To find the repeat unit:

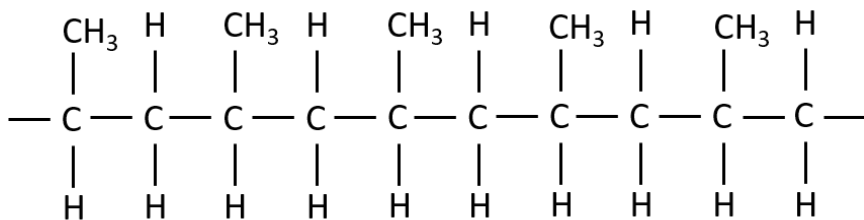
- Turn the double C=C into a single C-C.
- Add and extend bonds out from the sides of the carbon atoms.
- Add in square brackets around the molecule.



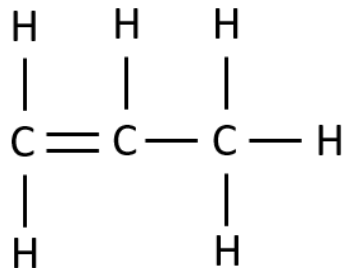
# Identify the monomer that formed the addition polymer below



Identify the monomer that formed the addition polymer below



Propene:



# Why are polymers difficult to dispose of?



## Why are polymers difficult to dispose of?

- They are non-biodegradable.
- The combustion of polymers can often form harmful compounds, such as HCl for chlorinated polymers.



Why are poly(alkenes) difficult to biodegrade?



Why are poly(alkenes) difficult to biodegrade?

Poly(alkenes) do not biodegrade easily because they are chemically inert.

