

Worksheet 11.4

Addition polymers and their uses

The table gives some information about monomers and the polymers that are made from them.

Name and structure of monomer	Name and structure of polymer
Ethene	Poly(ethene) $\left[\begin{array}{cc} \text{H} & \text{H} \\ & \\ -\text{C} & -\text{C}- \\ & \\ \text{H} & \text{H} \end{array} \right]_n$
Chloroethene $\begin{array}{cc} \text{Cl} & \text{H} \\ & \\ \text{C} & =\text{C} \\ & \\ \text{H} & \text{H} \end{array}$	Poly(chloroethene)
Phenylethene $\left[\begin{array}{cc} \text{H} & \text{C}_6\text{H}_5 \\ & \\ -\text{C} & -\text{C}- \\ & \\ \text{H} & \text{H} \end{array} \right]_n$

1 Complete the table.

2 What is meant by the term 'monomer'?

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3 What structural feature do these monomers have which enables them to be polymerised?

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4 Poly(ethene) can sometimes be used in place of steel. Give **one** advantage of using poly(ethene) in this way.

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5 Poly(chloroethene) is used to make coverings for electrical cables. It has replaced rubber for this use.

a State **two** properties of poly(chloroethene) that are common to plastics in general, and make it suitable for this use.

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b State **two** ways in which poly(chloroethene) is better than rubber for this use.

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6 Draw the structure of tetrafluoroethene and its polymer.

7 Describe **two** environmental problems that are associated with the disposal of plastics.

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