

GCSE Chemistry B (Twenty First Century Science)

J258/04 Depth in chemistry (Higher Tier)

Question Set 22

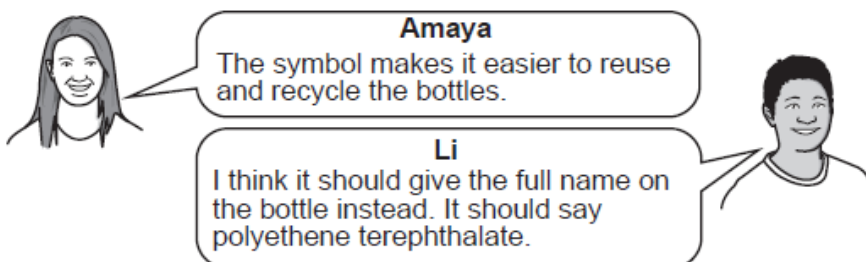
1

Mixed plastic waste contains drinks bottles made from a polymer known as PET (polyethene terephthalate).

Bottles made from PET have this symbol on the bottle.



(a) Amaya and Li discuss the PET symbol.



Do you agree with each person's comments?

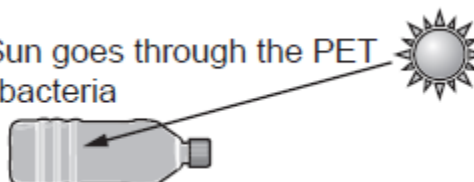
Give **one** reason for each of your answers.

[2]

(b) In some countries, waste PET bottles are used to treat water to make it safe for drinking.

They are washed and dried first, and then filled with water and left in the Sun.

UV radiation from the Sun goes through the PET into the water and kills bacteria



(i) If glass bottles are used instead of PET bottles, the bacteria are not killed.

Suggest why bacteria in water in a glass bottle are not killed.

[1]

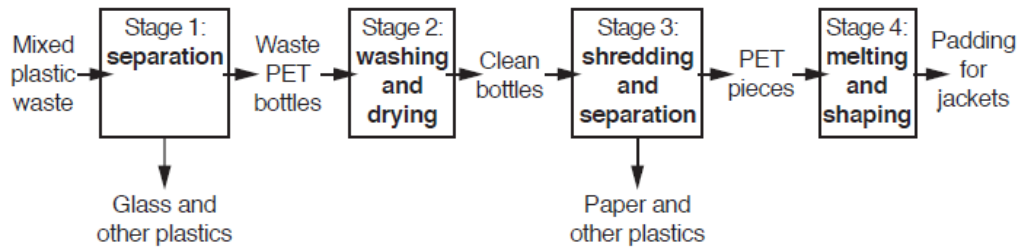
(ii) In the UK, bacteria in drinking water are killed by adding a substance to the water.

Name this substance.

[1]

- (c) Waste PET bottles can also be processed to be remade into polymers for new products.

The flowchart shows how mixed plastic waste is processed to produce padding for jackets.



- (i) Which stage of the flowchart produces pure PET?

Stage

[1]

- (ii) Waste PET bottles that are used to treat water are removed from the process before the end.

After which stage should bottles that are used to treat water be removed?

Stage

[1]

- (d) Using waste PET bottles to treat water or to make padding for jackets are two examples of ways to reduce mixed plastic waste.

Explain the difference between **reusing** and **recycling** PET bottles, using these two examples.

[2]

- (e) Waste PET bottles used to treat water and to make padding for jackets have different Life Cycle Assessments.

Give **two** reasons why their Life Cycle Assessments are different.

[2]

Total Marks for Question Set 22: 10

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