

**AQA - Using materials – GCSE Chemistry**

1. [May/2020/Paper\\_8462/2F/No.6](#)

This question is about materials used to make plates.

Plates are made from ceramics, paper or poly(propene).

Paper plates are biodegradable and recyclable.

Which stage of a life cycle assessment (LCA) would contain this information?

**[1 mark]**

Tick (✓) **one** box.

Disposal at the end of useful life

Extracting and processing raw materials

Manufacturing and packaging

Use and operation during lifetime

Which **two** processes are used to make ceramic plates?

**[2 marks]**

Tick (✓) **two** boxes.

Forming a composite

Galvanising with zinc

Heating in a furnace

Melting sand and boron trioxide

Shaping wet clay

Poly(propene) is produced from an alkene.

Complete the sentences.

[2 marks]

The name for very large molecules such as poly(propene) is \_\_\_\_\_.

The name of the alkene used to produce poly(propene) is \_\_\_\_\_.

The alkene needed to make poly(propene) is produced from crude oil.

Which **two** processes are used to produce this alkene from crude oil?

[2 marks]

Tick (✓) **two** boxes.

Chromatography

Cracking

Fermentation

Fractional distillation

Quarrying

What type of bond joins the atoms in a molecule of poly(propene)?

[1 mark]

Tick (✓) **one** box.

Covalent

Ionic

Metallic

**Table 4** shows information about two polymers used to make plates.

**Table 4**

Polymer	Effect of heating the polymer
<b>A</b>	does not melt
<b>B</b>	melts at 50 °C

What type of polymer is polymer **A**?

Use **Table 4**.

[1 mark]

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Why does polymer **A** behave differently to polymer **B** when heated?

You should refer to crosslinks in your answer.

[1 mark]

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## 2. May/2020/Paper\_8462/2H/No.5

This question is about materials used to make food plates.

Food plates are made from paper, polymers or ceramics.

**Table 2** shows information about plates of the same diameter made from each of these materials.

**Table 2**

	Food plate material		
	Paper	Polymers	Ceramics
Raw material	Wood	Crude oil	Mined clay
Number packaged in 10 dm <sup>3</sup> cardboard box	500	100	50
Average number of times used	1	400	1000
Biodegradable?	Yes	No	No
Recyclable?	Yes	Yes	No

**Table 2** does **not** show information about energy usage.

Suggest **two** pieces of information about energy usage which would help to produce a complete life cycle assessment (LCA) for the three food plate materials.

**[2 marks]**

1 \_\_\_\_\_

2 \_\_\_\_\_

