2.5 Using Resources: 10-minute Pack

AQA 8462 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Most of the UK's potable water is produced from fresh water taken from rivers and reservoirs.

(a) Describe the three main stages used to treat fresh water so that it becomes potable. **(3)**

(b) Give one reason why fresh water usually needs less treatment than sea water to become potable. **(1)**

(Total for Question 1 is 4 marks)

2 Copper can be extracted from low-grade ores (ores containing only a small percentage of copper) using methods other than traditional mining and smelting.

State the name of one alternative method of extracting copper from a low-grade ore, and briefly describe how it works.

(Total for Question 2 is 1 mark)

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3 In some countries, seawater must be used to produce potable water because there is not enough fresh water available.

State one method used to remove salt from seawater (desalination), and give one disadvantage of this method.

(Total for Question 3 is 2 marks)

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4 Stainless steel contains iron, chromium and sometimes nickel. State why chromium is added to steel.

(a) State the purpose of adding chromium to steel. **(1)**

(Total for Question 4 is 1 mark)

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Mark scheme · 2.5 Using Resources: 10-minute Pack

Question 1

(a) the water passes through a wire mesh screen to remove large solid debris (oe) **B1**

(a) sedimentation and filtration are used to remove any remaining insoluble solids/fine particles (oe) **B1**

(a) the water is sterilised, e.g. with chlorine, ozone or UV light, to kill microorganisms (oe, any named method) **B1**

(a) Answer: Screening removes large debris; sedimentation and filtration remove remaining insoluble solids; the water is then sterilised (for example with chlorine, ozone or UV light) to kill microorganisms.

(b) fresh water already has a low concentration of dissolved salts, so it does not need desalinating (oe) **B1**

(b) Answer: Fresh water already has a low salt content, so unlike sea water it does not need to be desalinated.

Question 2

phytomining: growing plants on soil that contains copper; the plants absorb copper compounds through their roots; the plants are then harvested and burned, and the copper compounds are collected from the ash, oe (accept bioleaching: using bacteria to produce a solution containing copper compounds, which is then processed to obtain copper) **B1**

Answer: For example, phytomining: plants are grown on land containing copper; they absorb copper compounds, and burning the harvested plants leaves ash from which copper can be obtained.

Question 3

distillation or reverse osmosis (accept either) **B1**

disadvantage: it requires large amounts of energy, which is expensive and (if from fossil fuels) has a negative environmental impact, oe **B1**

Answer: For example: distillation. This uses a large amount of energy, making it expensive and potentially damaging to the environment.

Question 4

(a) to make the steel more resistant to corrosion/rusting **B1**

(a) Answer: To make the steel more resistant to corrosion.

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