Water and use of resources

Edexcel GCSE Chemistry (1CH0) · Foundation and Higher

Answer on your own paper. Show your working where needed.

1. Potable water

A treated water sample still contains some dissolved mineral salts. Explain what makes water potable and why the presence of dissolved salts does not automatically make it unsafe.

2. What does chlorination achieve?

A pupil chlorinates a water sample that contains suspended solids and microorganisms. The water still looks cloudy. Explain what chlorination achieves and suggest a method for removing the remaining solid.

3. The condenser and the flask

A sample of seawater is purified by simple distillation. Explain why water can be collected at the condenser outlet and where the dissolved salt ends up.

4. Compare dissolved solids

A pupil evaporates 40 cm^3 of sample A and obtains 0.080 g of dry residue. Evaporating 80 cm^3 of sample B leaves 0.120 g. Which sample contains more dissolved solid per cm^3? Use both measurements in your working.

5. Checking a bottle comparison

A company says a new drinks bottle has a lower impact based on the energy used at the factory. State three other life-cycle stages to include and suggest an environmental impact to compare at one of those stages.

6. Choose water for an analysis

A laboratory has safe drinking water that contains dissolved salts and a supply of distilled water with no measurable dissolved salts. Which should be used for a test in which dissolved ions might produce a visible result? Explain.

7. Evidence for choosing packaging

To provide the same service 100 times, packaging A causes 8 kg CO_2 equivalent of emissions and uses 60 L of water. B causes 5 kg and uses 90 L. Which better meets a target to reduce emissions? Use both sets of figures to explain why another buyer might choose differently.

8. Reuse makes the comparison fair

A reusable container has a production footprint of 2.4 kg CO_2 equivalent. Each use adds 0.04 kg from washing. A disposable one adds 0.18 kg per use. Compare their footprints for 20 uses. State one assumption.

9. Extra challenge · Choose two water treatment routes

A treatment plant can use a well that contains suspended sediment and bacteria, or seawater. A nearby laboratory also needs water for a test that is sensitive to dissolved salts.

Describe a route that makes the well water potable and a different route for the seawater. Decide which step can supply the laboratory and explain your choice.

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