

Question 31 (6 marks)

- (a) A student collected a 250 mL sample of water from a local dam for analysis. The data collected are shown in the table.

| | |
|-----------------------------------|---------|
| Mass of filter paper | 0.23 g |
| Mass of filter paper and solid | 0.47 g |
| Mass of evaporating basin | 43.53 g |
| Mass of basin and solid remaining | 44.67 g |

} 1.43 solid

- (i) The water was filtered and the filtrate evaporated to dryness. 2

Calculate the percentage of the total dissolved solids in the dam sample.

the total dissolved solids is equal to:

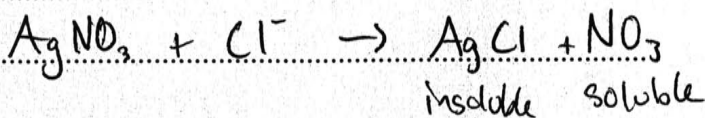
$$\frac{1.43}{250 \text{ mL}} \times 100$$

$$= 0.456\%$$

- (ii) It is suspected that the water in the dam has a high concentration of chloride ions. 2

Describe a chemical test that could be carried out on the water sample to determine the presence of chloride ions. Include an equation in your answer.

If you add Silver nitrate and a precipitate forms, Cl^- ions could be present



↓
precipitate

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Question 31 (continued)

- (b) Name an ion other than chloride that commonly pollutes waterways, and identify its source and the effect of its presence on water quality. 2

Phosphorus, sometimes as a builder in detergents that if it gets leached out in the water could cause eutrophication, algal blooms which can kill off marine life and water plants that

End of Question 31

rely on photosynthesis