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Experiment worksheet

2.5 The boiling points of liquids can be used to separate mixtures

Pages 38–39 and 180

Experiment 2.5: Crystallisation of salt water

Aim

To separate a salt from a solution by evaporation and crystallisation.

Materials

- Evaporating dish
- Tripod
- Clay triangle
- Bunsen burner and mat
- Salt solution
- 250 mL beaker
- Magnifying glass
- Matches

Method

1 Collect a sample of the salt solution.

2 Half-fill an evaporating dish with the solution.

3 Place the evaporating dish on the clay triangle over the tripod.

4 Heat the evaporating dish, with a blue flame.

5 When the solution starts boiling, half-close the Bunsen burner collar. (Don't change to a yellow flame – this is not the same.)

6 Add more solution to the dish as the level drops due to evaporation. Be careful as the evaporation nears completion because the hot salt may spit and splatter.

7 Turn off the Bunsen burner when just a little liquid remains with the salt. Leave the dish to cool.

8 Examine the salt crystals with a magnifying glass.

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Results

Draw a diagram of the crystals in the space provided.

Discussion

After the water has evaporated from the solution, salt remains in the evaporating dish.

1 If the solution contained a mixture of more than one solute, would the separation technique used in this experiment be suitable? Explain.

2 What is wasted in this experiment? Can you think of any way this could be avoided?

Conclusion

Explain how evaporation and crystallisation can be used to separate a mixture of salt and water.

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