IGCSE CHEMISTRY • EXERCISE SHEET

12.4 Separation and purification

Name: ____________ Class: ________ Date: __________ **Total: 8 marks**

Objective

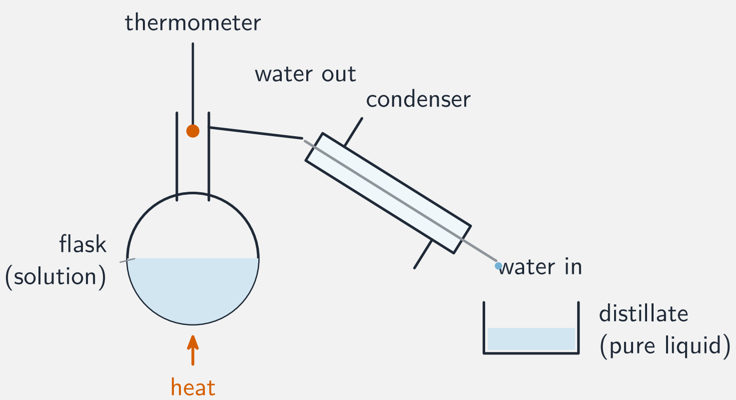
Build the skills to answer exam questions on **separation and purification** 分离与提纯—choosing **filtration** 过滤, **crystallisation** 结晶, **distillation** 蒸馏, and checking purity.

You must be able to:

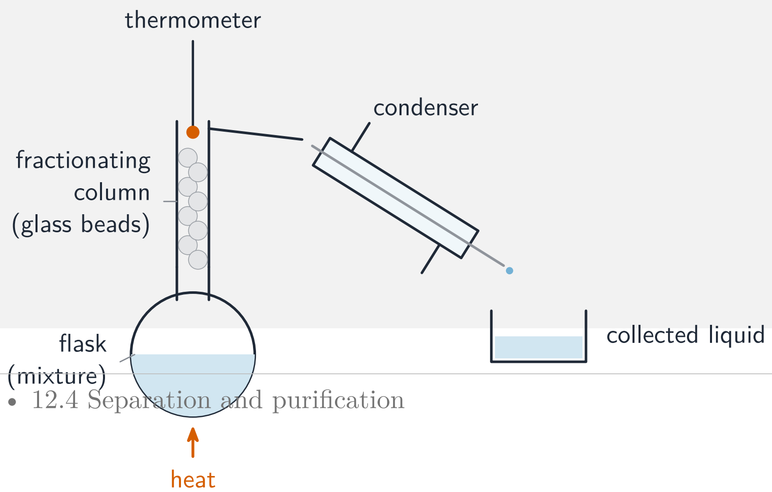
- choose the right method for a given mixture
- describe simple and fractional distillation
- check purity using melting and boiling points

1 Worked examples

■ Distillation methods



Simple distillation separates a solvent from a solution



> - filtration: insoluble solid from a liquid; crystallisation: soluble solid from solution.

2 Practice

2.1 Name the method to separate an insoluble solid from a liquid. [1]

2.2 State how impurities affect the melting point of a substance. [1]

3 Exam-style questions

3.1 To separate two liquids with different boiling points, you would use: [1]

- **A** filtration
- **B** crystallisation
- **C** fractional distillation
- **D** chromatography

3.2 A student wants pure water from salty water.

(a) Name the method to use. [1]

(b) Describe how it separates the water from the salt. [2]

3.3 Explain how you could check that a sample of a solid is pure. [2]

4 Go further

You are now ready for the real exam questions on this subtopic. Open the **12.4 Separation and purification** past-paper sheet in the Library, or try these in **Practice mode**:

- 0620/21 N25 —Q40 (separation methods)
- 0620/42 N25 —Q3 (purification)

Solutions

2.1 filtration.

2.2 impurities lower the melting point.

3.1 C. Fractional distillation separates liquids with different boiling points.

3.2 (a) simple distillation.
(b) the water boils off and is cooled back to a liquid in the condenser; the salt is left behind in the flask.

3.3 measure its melting (or boiling) point; a pure substance melts at a sharp, fixed temperature, while impurities lower it / give a range.