Separating Mixtures

KS3 Chemistry · Follows the national curriculum

Name _____ Class _____ Date _____

1. Worked example

How would you get dry sand from a mixture of sand and water?

Step 1 · Is the sand dissolved?

No, sand is insoluble in water.

Step 2 · Choose a method

Filtration: the sand stays on the filter paper residue.

Step 3 · Finish

Leave the residue to dry in a warm place.

Answer: Filter, then dry the residue

Check: Filtration only works for insoluble solids.

2. Now try one with the steps

Describe how to get pure salt from rock salt (salt mixed with sand and grit).

Step 1 · Dissolve

Step 2 · Filter

Step 3 · Evaporate

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. Which method separates an insoluble solid from a liquid? [1]

2. What is the name for the liquid that passes through filter paper? [1]

3. What is the name for the solid left on the filter paper? [1]

4. Which method gets salt from salt water when you don't need the water? [1]

5. Which method separates the different dyes in black ink? [1]

6. What is the job of the condenser in distillation? [1]

7. Why is the start line in chromatography drawn in pencil, not ink? [1]

8. Why must the solvent level be below the start line? [1]

9. Which property of substances does distillation depend on? [1]

10. Put these in order to get salt from rock salt: evaporate, filter, dissolve. [2]

11. Why is crystallisation sometimes better than heating to dryness? [2]

12. An ink gives four spots in chromatography. How many dyes does it contain, at least? [1]

13. A dye gives just one spot with several different solvents. What does this suggest? [1]

14. (Stretch) A spot moved 3 cm and the solvent front 6 cm. Rf = distance moved by spot ÷ distance moved by solvent. What is the Rf value? [1]

4. Before you hand it in

Choosing evaporation when the question wants the water.
Want the dissolved solid → evaporate. Want the liquid → distil.

Trying to filter salt out of salt water.
Filtration only separates INSOLUBLE solids.

Drawing the chromatography start line in pen.
Always use pencil, and keep the line above the solvent.

Saying 'the salt evaporates'.
The WATER evaporates; the salt is left behind.