Year 7 Chemistry: Separating Mixtures Worksheet - Mark Scheme

Lower Secondary · Year 7 · Filtration, evaporation, distillation and chromatography

Section A: Key words [9 marks]

1(a)	soluble	**1**
1(b)	insoluble	**1**
1(c)	solution; solute; solvent	**3**
1(d)	residue; filtrate	**2**
2	A mixture contains two or more substances that are not chemically joined (1). A pure substance contains only one type of substance (1).	**2**

Section B: Choosing a method [15 marks]

3	Filtration; evaporation; distillation; chromatography; magnet. Guidance: 1 mark each.	**5**
4	Pour the mixture through filter paper in a funnel (1). The sand stays on the filter paper as the residue (1). The water passes through as the filtrate (1).	**3**
5	Heat the solution in an evaporating basin (1). The water evaporates (1). Salt crystals are left behind (1).	**3**
6	Add water and stir to dissolve the salt (1). Filter the mixture (1). Sand is the residue; salt solution is the filtrate (1). Evaporate the filtrate to get the salt (1).	**4**

Section C: Distillation and chromatography [14 marks]

7	Heat the salty water until it boils (1). Water turns to steam / evaporates, salt stays behind (1). Steam passes into a condenser and is cooled (1). It condenses to liquid water and is collected (1).	**4**
8	Water has a lower boiling point than salt (1) so it evaporates first, but the salt does not evaporate (1).	**2**
9	Draw a pencil line near the bottom of the paper (1). Put a spot of ink on the line (1). Stand the paper in a little solvent (water) with the line above the liquid (1). The solvent rises, carrying the colours different distances (1).	**4**
10	Pencil is insoluble in the solvent (1) so it does not run up the paper and mix with the ink colours (1).	**2**
11	Ink B (1) because it has the same 3 spots at the same heights (1).	**2**

Section D: Applying ideas [4 marks]

12	Any sensible: water treatment / filtering; getting salt from sea water; separating crude oil; coffee filter; recycling.	**1**
13	The sun heats the water (1) so it evaporates (1) and salt crystals are left in the pool (1).	**3**

Total: 42 marks. Accept any scientifically correct alternative wording.