

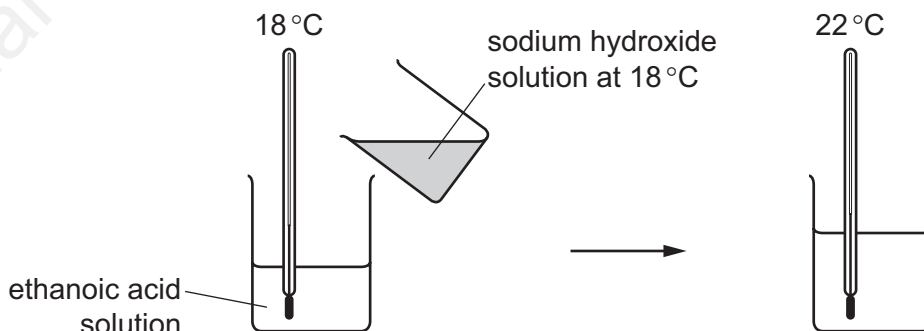
Smart Exam Resources

CAMBRIDGE LOWER SECONDARY CHECKPOINT PRACTISE QUESTIONS - MARKSCHEMS

Subject: Chemistry- Stage - 9

Topic: Preparing Common Salts Set-1

- 1 A student adds an aqueous solution of sodium hydroxide to an aqueous solution of ethanoic acid. She measures the temperature before and after the addition of sodium hydroxide.



The product of the reaction is a salt called sodium ethanoate.

Describe how you would prepare pure, dry crystals of sodium ethanoate from a solution of sodium ethanoate in water.

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.....

.....

..... [3]

MARK SCHEME:

Any three of:

- evaporation/ heat solution/leave the solution;
- to crystallisation point/to form crystals;
- filter off crystals / pick out crystals;
- dry crystals between filter papers / heat gently / heat to just above 100°C; 3

2

The following statements are about the procedure for making crystals of hydrated magnesium chloride from magnesium and dilute hydrochloric acid.

- A Leave the mixture until no more bubbles are seen.
- B Leave the mixture at room temperature to form more crystals.
- C Add an excess of magnesium to dilute hydrochloric acid.
- D Warm the filtrate to the point of crystallisation.
- E Filter off the crystals and dry between filter papers.
- F Filter off the excess magnesium.

Put the statements **A**, **B**, **C**, **D**, **E** and **F** in the correct order.
The first one has been done for you.

C					
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[2]

MARK SCHEME:

(C), A, F, D, B, E (2)

if 2 marks not scored 1 mark for 1 consecutive pair reversed

MARK SCHEME:

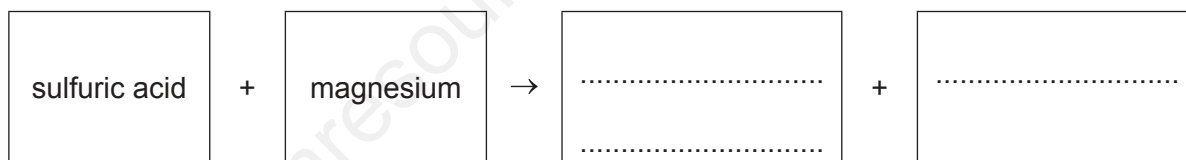
(a) (hydrochloric acid + zinc) → zinc chloride (1) + hydrogen (1) 2

(b)(B), A, E, C, D, F (2)

If 2 marks not scored: 1 mark for 1 consecutive pair reversed

4

Complete the word equation for the reaction of dilute sulfuric acid with magnesium.



[2]

MARK SCHEME:

magnesium sulfate (1)
hydrogen (1)

5 Magnesium sulfate and lead(II) sulfate are examples of salts.

(a) A student prepared magnesium sulfate crystals starting from magnesium carbonate. The student carried out the experiment in four steps.

step 1 The student added excess magnesium carbonate to a small volume of dilute sulfuric acid until no more magnesium carbonate would react.

step 2 The student filtered the mixture.

step 3 The student heated the filtrate obtained from **step 2** until it was saturated.

step 4 The student allowed the hot filtrate to cool to room temperature and then removed the crystals which formed.

(i) How did the student know when the reaction had finished in **step 1**?

..... [1]

(ii) Name the residue in **step 2**.

..... [1]

(iii) A saturated solution forms in **step 3**.

What is a saturated solution?

.....
..... [2]

(iv) Explain why magnesium sulfate crystals form during **step 4**.

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..... [1]

MARK SCHEME:

(a)(i)	no (more) effervescence	1
(a)(ii)	magnesium carbonate	1
(a)(iii)	(a solution in which) no more solute will dissolve	1
	at that temperature	1
(a)(iv)	the solubility decreases as the temperature decreases	1

6

Describe how you would prepare a pure dry sample of copper(II) nitrate crystals in the laboratory using dilute nitric acid and solid copper(II) carbonate.
Include a series of key steps in your answer.
You should include a chemical equation for the reaction.

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..... [6]

MARK SCHEME:

add copper(II) carbonate (to acid) until it stops dissolving or no more effervescence / bubbling / fizzing	1
filter (to remove copper(II) carbonate)	1
evaporate / heat / warm / boil / leave in sun AND until most of the water has gone / some water is left / evaporate some of the water / until it is concentrated / saturation (point) / crystallisation point / crystals form on glass rod or microscope slide / crystals start to form	1
(for any solution) leave / allow to cool / allow to crystallise OR (for any crystals) filter / wash / dry with filter paper / dry in warm place / dry in a (low) oven / leave to dry	1
formula of $\text{Cu}(\text{NO}_3)_2$	1
equation: $\text{CuCO}_3 + 2\text{HNO}_3 \rightarrow \text{Cu}(\text{NO}_3)_2 + \text{CO}_2 + \text{H}_2\text{O}$	1

Note:

- **At the checkpoint stage, you may include a word equation**