

**GCSE Chemistry B (Twenty First Century Science)**  
**J258/01** Breadth in Chemistry (Foundation Tier)

**Question Set 34**

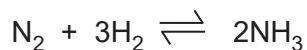
Multiple Choice Questions

1

Ammonia is used to make synthetic fertilisers.

(a)

Ammonia is manufactured in the Haber process.



Which statements about this reaction are **true** and which are **false**?

Tick (✓) **one** box in each row.

	True	False
2 moles of nitrogen react with 3 moles of hydrogen.		
The reaction reaches a 100% yield.		
At equilibrium, the forward reaction is faster than the backward reaction.		

[3]

(b)

Sundip makes ammonium sulfate from a solution of ammonia in the laboratory. The method is shown below but is **not** in the correct order.

Write a number from **1–6** in each box to give the correct order for the steps of the method.

Step	Method
	Wait for the crystals to form after the solution has cooled down.
	Slowly evaporate the solution until most of the solution has gone.
	Wash and dry the crystals.
	Put some sulfuric acid in a beaker.
	Add ammonia until the solution is alkaline.
	Filter the solution.

[2]

(c) Sundip makes 9.9g of ammonium sulfate.

The maximum mass of ammonium sulfate she could have made is 13.2 g.

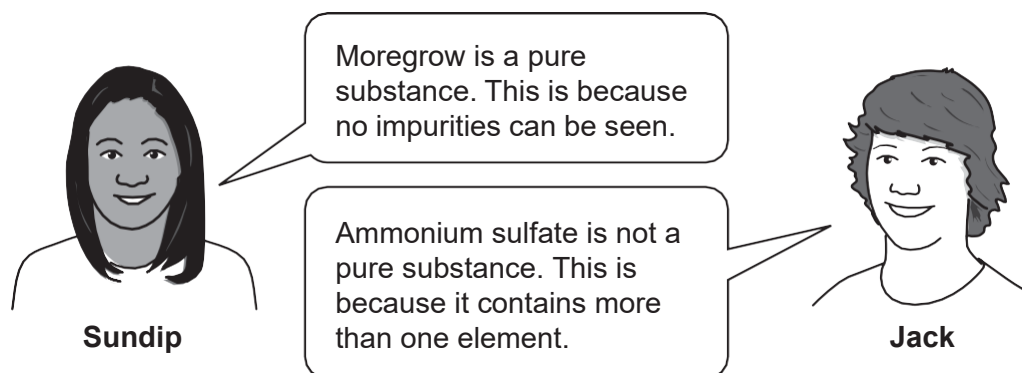
Calculate the percentage yield.

Use the formula:  $\text{percentage yield} = \frac{\text{mass made}}{\text{maximum mass}} \times 100\%$

Percentage yield = ..... % [2]

(d) Ammonium sulfate is mixed with other compounds to make the fertilizer Moregrow. Moregrow is a white powder.

**Sundip** and **Jack** talk about the compounds in Moregrow:



Do you agree with each person's comments?

Give **one** reason for each of your answers.

[2]

**Total Marks for Question Set 34: 9**

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