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Level: CIE AS and A Level (9701)

Subject: Chemistry

Topic: CIE Chemistry

Type: Topic Question

2002

XVIII

1583

Chemistry CIE AS & A Level  
To be used for all exam preparation for 2025+

# CHEMISTRY

# AS and A

This to be used by all students studying CIE AS and A level Chemistry (9701) But students of other boards may find it useful

### Question 1

What is the complete list of all the products from the reaction of potassium bromide with concentrated sulfuric acid?

- A. Potassium hydrogen sulfate, hydrogen bromide, bromine, water and sulfur dioxide
- B. Potassium hydrogen sulfate, hydrogen bromide, bromine and water
- C. Potassium hydrogen sulfate, hydrogen bromide and bromine
- D. Potassium hydrogen sulfate and hydrogen bromide

[1 mark]

### Question 2

Astatine is the element below iodine in Group 17 of the Periodic Table.

Which statement is most likely to be true for astatine?

- A. Silver astatide reacts with dilute aqueous ammonia in excess to form a solution of a soluble complex.
- B. Sodium astatide and hot concentrated sulfuric acid react to form astatine.
- C. Astatine and aqueous potassium chloride react to form aqueous potassium astatide and chlorine.
- D. Potassium astatide and hot dilute sulfuric acid react to form white fumes of only hydrogen astatide.

[1 mark]

### Question 3

An unlabeled powder is known to be either a single sodium halide or a mixture of two different sodium halides.

To determine what the powder consists of a sample of the powder was first dissolved in water. Then acidified aqueous silver nitrate was added to the new solution, and a pale yellow precipitate was formed.

When concentrated aqueous

ammonia was added, the precipitate partly dissolved, leaving a darker yellow precipitate.

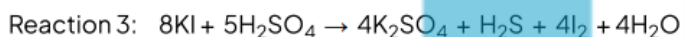
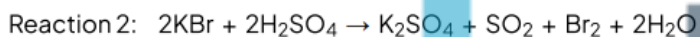
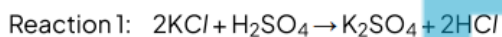
What might the powder have consisted of?

- A. Sodium iodide only
- B. Sodium bromide only
- C. A mixture of sodium chloride and sodium bromide
- D. A mixture of sodium chloride and sodium iodide

[1 mark]

#### Question 4

Solid potassium halides react with concentrated sulfuric acid, according to the following equations.



What is the largest **change** in the oxidation number of sulfur in each of these reactions?

	Reaction 1	Reaction 2	Reaction 3
A	0	0	4
B	0	2	4
C	0	2	8
D	0	4	8

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[1 mark]