

Group 7 Halogens

GCSE Chemistry · Written to the shared content for AQA, Edexcel and OCR

Name _____ Class _____ Date _____

1. Worked example

Describe the trend in melting point and boiling point down group 7 and use it to predict the state of iodine at room temperature. (2 marks)

Step 1 · Trend

Melting and boiling points increase down the group (as relative molecular mass increases).

Step 2 · Prediction

Chlorine is a gas and bromine a liquid, so iodine, lower down, is a solid.

Answer: They increase; iodine is a solid

Check: Iodine is a grey-black solid that gives a purple vapour.

2. Now try one with the steps

Chlorine water is added to sodium bromide solution and the mixture turns orange. Explain this observation. (2 marks)

Step 1 · Reactivity

Step 2 · Displacement

Answer:

3. Practice

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

1. State what is meant by the term diatomic. [1]

2. State the physical state of bromine at room temperature. [1]

3. Give the colour of chlorine gas. [1]

4. Describe the trend in reactivity down group 7. [1]

5. Name the product formed when sodium reacts with chlorine. [1]

6. Chlorine water is added to potassium iodide solution. Predict what you would see and explain why. [2]

7. Explain why there is no reaction when bromine water is added to potassium chloride solution. [1]

8. Write a word equation for bromine reacting with potassium iodide. [1]

9. Balance the equation: $\text{Cl}_2 + \text{KI} \rightarrow \text{KCl} + \text{I}_2$ [1]

10. Calculate the relative formula mass of bromine, Br_2 . (Br = 80) [1]

11. Hydrogen chloride dissolves in water. State the type of solution formed. [1]

12. Explain why reactivity decreases down group 7. [3]

13. Write the ionic equation for bromine displacing iodide ions. [2]

14. Astatine is below iodine. Predict its state at room temperature and whether it would displace iodine from potassium iodide. [2]

4. Before you hand it in

"Reactivity increases down group 7, like group 1."

Group 7 reactivity DECREASES down the group.

Writing chlorine in equations

Use Cl_2 , Br_2 , I_2 for the elements.

Confusing chlorine with chloride

Chlorine is the element (Cl_2); chloride is the ion (Cl^-) in a compound such