

Acids Bases pH

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

Name _____ Class _____ Date _____

1. Worked example

Name the salt formed when zinc oxide reacts with nitric acid, and write the word equation. (2 marks)

Step 1 · Salt name

Metal from the base (zinc) + ending from the acid (nitric → nitrate): zinc nitrate.

Step 2 · Word equation

zinc oxide + nitric acid → zinc nitrate + water

Answer: zinc nitrate; zinc oxide + nitric acid → zinc nitrate + water

Check: Acid + metal oxide → salt + water.

2. Now try one with the steps

Give the three products when sodium carbonate reacts with hydrochloric acid, and describe the test for the gas. (4 marks)

Step 1 · Products

Step 2 · Test

Step 3 · Result

Answer:

3. Practice

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

1. Name the salt formed when zinc reacts with hydrochloric acid. [1]

2. Name the type of salt formed by sulfuric acid. [1]

3. State the products when an acid reacts with a metal carbonate. [3]
- _____
- _____
- _____
4. Define the term alkali. [1]
- _____
- _____
5. Write a word equation for magnesium oxide reacting with sulfuric acid. [1]
- _____
- _____
6. Describe the test for the gas produced when an acid reacts with a carbonate. [2]
- _____
- _____
7. Write the formula of potassium sulfate. [1]
- _____
- _____
8. Balance the equation: $\text{CuO} + \text{HCl} \rightarrow \text{CuCl}_2 + \text{H}_2\text{O}$ [1]
- _____
- _____
9. Calculate the relative formula mass of sodium sulfate, Na_2SO_4 . (Na = 23, S = 32, O = 16) [1]
- _____
- _____
10. Write a balanced symbol equation for sodium hydroxide reacting with sulfuric acid. [2]
- _____
- _____
11. Write the half equation for hydrogen ions forming hydrogen gas. [1]
- _____
- _____
12. Write the ionic equation for zinc reacting with an acid. [1]
- _____
- _____
13. Explain, in terms of electrons, why the reaction of a metal with an acid is a redox reaction. [2]
- _____
- _____

14. Calculate the mass, in g, of magnesium chloride formed when 2.4 g of magnesium reacts with excess hydrochloric acid. $\text{Mg} + 2\text{HCl} \rightarrow \text{MgCl}_2 + \text{H}_2$ (Mg = 24, Cl = 35.5) [3]

4. Before you hand it in

"Acid + metal oxide gives hydrogen."

Metal $\rightarrow$ salt + hydrogen; oxide or hydroxide $\rightarrow$ salt + water; carbonate $\rightarrow$ salt + water + CO_2 .

Naming salts from the wrong part

e.g. copper oxide + sulfuric acid $\rightarrow$ copper sulfate.

Writing sodium sulfate₄

Two Na^+ balance one SO_4^{2-} : Na_2SO_4 .