

Acids and Metals

KS3 Chemistry · Follows the national curriculum

Name _____ Class _____ Date _____

1. Worked example

Write the word equation for zinc reacting with hydrochloric acid.

Step 1 · General pattern

metal + acid → salt + hydrogen

Step 2 · Name the salt

Zinc + hydrochloric acid gives zinc chloride.

Answer: zinc + hydrochloric acid → zinc chloride + hydrogen

Check: Hydrochloric acid → chloride salts.

2. Now try one with the steps

How do you test for hydrogen gas?

Step 1 · Collect the gas

Step 2 · Test

Step 3 · Result

Answer:

3. Practice

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

1. Complete: metal + acid → _____ + _____ [1]

2. Which gas is made when magnesium reacts with acid? [1]

3. Describe the test for hydrogen. [1]

4. What type of salt does hydrochloric acid make? [1]

5. What type of salt does sulfuric acid make? [1]

6. What type of salt does nitric acid make? [1]

7. Name the salt made from iron and hydrochloric acid. [1]

8. Write the word equation for magnesium + sulfuric acid. [2]

9. Why is copper not used to make hydrogen with dilute acid? [1]

10. Why must sodium and potassium NEVER be added to acids? [1]

11. The test tube gets warmer when magnesium reacts with acid. Is the reaction exothermic or endothermic? [1]

12. Name the metal and the acid needed to make zinc sulfate. [2]

13. Suggest how to get solid crystals of magnesium chloride after the reaction has finished. [2]

14. Balance: $\text{Mg} + \text{HCl} \rightarrow \text{MgCl}_2 + \text{H}_2$. What number goes in front of HCl? [1]

4. Before you hand it in

"The gas is oxygen."

Metal + acid always gives HYDROGEN. Test: squeaky pop.

Using a glowing splint to test for hydrogen.

Hydrogen: LIT splint → squeaky pop. Oxygen: GLOWING splint → relights.

"Salt" always means table salt.

A salt is a compound made when the hydrogen of an acid is replaced by a metal: zinc sulfate, copper chloride, and so on.

"All metals react with acids."

Only metals above hydrogen in the reactivity series react with dilute acids.