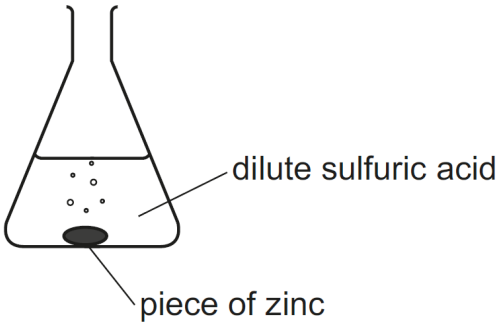
Oxford Cambridge and RSA

# GCSE Chemistry B (Twenty First Century Science)

**J258/03** Breadth in chemistry (Higher Tier)

## Question Set 20

**1** Sundip reacts zinc with dilute sulfuric acid.




This is the equation for the reaction:

$Zn + H_2SO_4 \rightarrow ZnSO_4 + H_2$

**(a)** Sundip drops a **piece** of zinc into some dilute sulfuric acid.

She then drops some zinc **powder** into the dilute sulfuric acid.

Which reaction is faster?

Explain your answer. **[1]**

**(b)** Sundip adds some blue copper sulfate solution to the sulfuric acid. She then drops in a piece of zinc.

Sundip thinks copper sulfate is a catalyst.

Describe **two** things that Sundip would observe if copper sulfate is a catalyst. **[2]**

**(c)** **(i)** Sundip uses 6.5 g of zinc and excess acid. All the zinc reacts.

Calculate the **volume** of hydrogen is made at room temperature and pressure.

Use the formula: number of moles of gas = $\frac{\text{volume of gas in sample}}{24}$

Give your answer to **2** significant figures.

One mole of gas at room temperature and pressure has a volume of 24 $dm^3$.

Volume of hydrogen = ..... $dm^3$ **[2]**

**(ii)** Sundip repeats **(c)(i)** with a catalyst present.

How does the volume of hydrogen compare with the volume calculated in part **(c)(i)**?

Give **one** reason for your answer.

**[2]**

## Total Marks for Question Set 20 : 7