

Unit 2: Atoms, molecules and stoichiometry

Subunit 2.4: Reacting masses and volumes (solutions and gases)

Topical Question No: 1

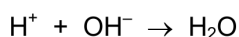
- 17 In an experiment, 0.600 mol of chlorine gas, Cl_2 , is reacted with an excess of hot aqueous sodium hydroxide. One of the products is NaClO_3 .

Which mass of NaClO_3 is formed?

- A 21.3 g B 44.7 g C 63.9 g D 128 g

Topical Question No: 2

- 6 Sodium hydroxide neutralises acid.



In a $11\,000\text{ dm}^3$ sample of an aqueous solution, the concentration of acid, $[\text{H}^+]$, is $1.26 \times 10^{-3} \text{ mol dm}^{-3}$.

Which mass of solid sodium hydroxide neutralises the acid?

- A 0.0214 g B 0.0504 g C 236 g D 554 g

Topical Question No: 3

- 25 Which volume of hydrogen, measured under room conditions, is produced when 0.160 g of methanol reacts with an excess of sodium?

- A 60 cm^3 B 120 cm^3 C 240 cm^3 D 480 cm^3

Topical Question No: 4

- 2 A 3.7 g sample of copper(II) carbonate is added to 25 cm^3 of 2.0 mol dm^{-3} hydrochloric acid.

Which volume of gas is produced under room conditions?

- A 0.60 dm^3 B 0.72 dm^3 C 1.20 dm^3 D 2.40 dm^3

Topical Question No: 5

- 27 Use of the Data Booklet is relevant to this question.

Which volume of oxygen, at room temperature and pressure, is needed for complete combustion of 0.1 mol of ethanol?

- A 7.2 dm^3 B 8.4 dm^3 C 14.4 dm^3 D 16.8 dm^3

Topical Question No: 6

18 *Use of the Data Booklet is relevant to this question.*

A chemist took 2.00 dm^3 of nitrogen gas, measured under room conditions, and reacted it with a large volume of hydrogen gas, in order to produce ammonia. Only 15.0% of the nitrogen gas reacted to produce ammonia.

What mass of ammonia was formed?

- A** 0.213 g **B** 0.425 g **C** 1.42 g **D** 2.83 g

Topical Question No: 7

9 *Use of the Data Booklet is relevant to this question.*

In an experiment, 12.0 dm^3 of oxygen, measured under room conditions, is used to burn completely 0.10 mol of propan-1-ol.

What is the final volume of gas, measured under room conditions?

- A** 7.20 dm^3 **B** 8.40 dm^3 **C** 16.8 dm^3 **D** 18.00 dm^3

Answer Key

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