

2.3 AVOGADRO'S LAW AND SOME DEDUCTIONS- SQ

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Definition of Avogadro's Hypothesis

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| 1. In what way has Avogadro's hypothesis given support to Dalton's atomic theory? | 2 |
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Important deductions from Avogadro's Hypothesis

Molecular mass = $2 \times$ vapour density

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| 2. Use Avogadro's hypothesis to find the vapour density of a volatile substance. | 3 |
| 3. Show that Molecular mass = $2 \times$ vapour density | 3 |
| 4. 1 litre of hydrogen at STP weighs 0.09g. If 2 litres of a gas at STP weigh 2.880g, calculate the vapour density and molecular weight of the gas. | 2 |

Gram molecular volume of all gases contains 22.4 l at NTP

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| 5. Calculate the weight of 11.2 litres of CO_2 gas at STP. | 1 |
| 6. Calculate the volume of 7.1 grams of chlorine gas at NTP. | 1 |
| 7. What volume does 128 g of sulphur dioxide gas occupy at NTP? | 1 |

Deduction of Avogadro's number

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| 8. Avogadro's concept, previously called a hypothesis, is now called a law. | |
| I. State Avogadro's law. | |
| II. What do you mean by molar mass and molar volume? | |
| III. Write the relationship between molecular mass and vapour density of a gas. | |
| IV. Derive the relation in the above question (III). | 1+1+1+2 |

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