

Exercise 1.46 – Density

Q1406-01 An unknown gas has a density of $1.43 \times 10^{-3} \text{ g/cm}^3$ at STP, calculate its relative molecular mass and suggest a possible identity for the gas.

Q1406-02 An unknown gas has a density of $7.59 \times 10^{-4} \text{ g/cm}^3$ at STP, calculate its relative molecular mass.

Q1406-03 If 224 cm^3 of an unknown gas has a mass of 1.2g , calculate its density in g/cm^3 and find the molar mass of the gas.

Q1406-04 Calculate the density in g/cm^3 of hydrogen chloride gas at STP.

Q1406-05 Calculate the density in g/cm^3 of sulphur dioxide gas at STP. How does this value affect levels of **pollution** in cities?

Q1406-06 A weather balloon contains 3600 cm^3 of gas at STP. The empty balloon has a mass of 10.30g and the full balloon has a mass of 10.94g . Calculate the density of the gas in g/dm^3 in the balloon and suggest an identity for the gas.

Q1406-07 Calculate the density of an unknown gas if 100cm^3 of the gas has a mass of 0.125g , and hence its relative molecular mass.

Q1406-08 If the air contains about 20% oxygen and 80% nitrogen calculate the density of air at STP in g/cm^3 .

Q1406-09 If the density of helium gas = 0.178 g/dm^3 calculate the mass of helium in a 200m^3 weather balloon at STP.

Q1406-10 A pressurised gas cylinder with a volume of 10dm^3 contains compressed oxygen at a density of 2.62g/dm^3 . When all of the gas is released and allowed to attain STP conditions what will be the new volume occupied by the gas.
