

Exercise 1.405 – Mass and moles relationships in gases

Q1405-01 Calculate the relative molecular mass when 15g of a gas occupies 2240cm³ at STP

Q1405-02 Calculate the relative molecular mass of an unknown gas if 0.22g occupies 75 cm³ at STP.

Q1405-03 Calculate the relative molecular mass of an unknown gas if 0.72g occupies 44 cm³ at STP.

Q1405-04 Calculate the relative molecular mass of an unknown gas if 0.55g occupies 60 cm³ at STP.

Q1405-05 Calculate the number of moles of gas contained at STP in a 100cm³ gas syringe. If the difference in mass between the empty and full syringe is 0.32g calculate the relative molecular mass of the gas.

Q1405-06 In an experiment to determine the relative molecular mass of a gas a sealed flask was weighed full of the gas at STP. The following results were obtained.

- Mass of evacuated flask = 102.35g
- Mass of flask and unknown gas= 103.10g
- Volume of flask = 251.56 cm³

Calculate the relative molecular mass of the gas.

Q1405-07 In an experiment to determine the relative molecular mass of a gas a sealed glass bottle was weighed full of gas at STP. The following results were obtained.

- Mass of evacuated bottle = 50.40g
- Mass of flask and unknown gas= 50.66g
- Volume of flask = 49.30 cm³

Calculate the relative molecular mass of the gas.

Q1405-08 A 20g sample of oxygen gas is contained at STP, calculate its volume.

Q1405-09 120g of carbon monoxide gas is contained in a balloon at STP. Calculate the volume of the balloon.

Q1405-10 A sample of natural gas contains methane (CH₄). Calculate the volume in m³ occupied by 20kg of the gas at STP.
