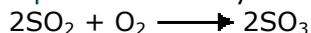Q1403-01 In the reaction between sulphur dioxide and oxygen forming sulphur (VI) oxide, the gases are passed over a hot vanadium pentoxide catalyst acording to the equation:
$$2SO_2 + O_2 \longrightarrow 2SO_3$$
Calculate the volume of oxygen needed to react fully with 200cm^3 of sulphur dioxide.

Q1403-02 What volume of carbon dioxide will be formed from the complete combustion of 200cm^3 methane?

Q1403-03 What volume of oxygen will be required to completely oxidise 200cm^3 of ammonia according to the equation:
$$4NH_3 + 5O_2 \longrightarrow 4NO + 6H_2O$$

Q1403-04 What will be the final volume of gas when 300cm^3 ethene reacts with 300cm^3 oxygen at 400ºC?
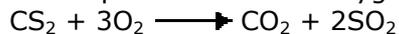
Q1403-05 What will be the final volume of the gas mixture, when 100cm^3 propane reacts with 600cm^3 oxygen at 400ºC?

Q1403-06 When 100cm^3 of ethene is burned in excess oxygen, calculate the volume of carbon dioxide produced (all gas volumes measured at STP)

Q1403-07 Calculate the volume of oxygen required to react with excess carbon monoxide, to produce 500cm^3 of carbon dioxide gas.

Q1403-08 In the combusion of methanal, 100cm^3 of methanal reacted with 200cm^3 of oxygen. Calculate the composition of the gas mixture produced, if all measurements were taken at STP.

Q1403-09 At 200ºC carbon disulphide vapour reacts with oxygen according to the equation:
$$CS_2 + 3O_2 \longrightarrow CO_2 + 2SO_2$$
Calculate the final composition of the gas mixture produced when 1.2dm^3 of carbon disulphide vapour reacts with 1.2dm^3 of oxygen gas

Q1403-10 In a gunpowder mixture, the ratio of sulphur to carbon is 3 :1 by mass. If both are fully oxidised in the explosion to sulphur and carbon dioxide and 200cm^3 of sulphur dioxide are formed, calculate the volume of carbon dioxide that is also produced in the explosion.

Q1403-11 Calculate the moles of gas present at STP in a 5dm^3 flask.

Q1403-12 What volume of oxygen corresponds to 0.2 moles, measured at STP.

Q1403-13 Find the volume occupied at STP, by a mixture containing 0.05 moles of hydrogen and 0.025 moles of oxygen gas.

Q1403-14 Calculate the number of moles of gas contained at STP in a 100cm^3 gas syringe.

Q1403-15 Find the volume occupies at STP by a mixture containing 0.01 moles of neon and 0.03 moles of oxygen gas.

Q1403-16 Find the amount of oxygen corresponding to a volume at STP of 40cm^3 of oxygen gas.

Q1403-17 A mixture of 400cm^3 of oxygen gas and 640 cm^3 of hydrogen gas is contained at STP, calculate the total number of moles present.

Q1403-18 If 2 moles of carbon monoxide gas are mixed with and 4 moles of hydrogen gas at STP, calculate the volume occupied.

Q1403-19 A sample of natural gas contains 120 moles of methane and 20 moles of helium. Calculate the volume in m^3 occupied by the gases at STP to three significant figures.

Q1403-20 A sample of syngas contains 60 moles of carbon monoxide, 15 moles of carbon dioxide and 60 moles of hydrogen. Calculate the volume in m^3 occupied by the gases at STP, to three significant figures.