

### Molar Gas Volumes

1. Calculate the volume of 0.01g of hydrogen at rtp.
2. Calculate the mass of 100cm<sup>3</sup> of CO<sub>2</sub> at rtp.
3. Calculate the mass of 200cm<sup>3</sup> of chlorine gas at rtp.
4. Calculate the density of argon at rtp.
5. Calculate the volume occupied by 0.16g of oxygen gas at rtp.
6. If a gas has a density of 1.42gdm<sup>-3</sup> at rtp, calculate the mass of 1mole of the gas.
7. Calculate the volume of carbon dioxide evolved at rtp when an excess of dilute hydrochloric acid is added to 1.00g of calcium carbonate.
8. A student carried out an experiment in which she had to produce some hydrogen from the reaction between aluminium and excess dilute hydrochloric acid. In order to measure the volume evolved at rtp, she collected the hydrogen in a 100cm<sup>3</sup> gas syringe. What is the maximum mass of aluminium she could have used so that she did not exceed the 100cm<sup>3</sup> capacity of the gas syringe?

9. Chlorine can be prepared by heating manganese(IV) oxide with an excess of concentrated hydrochloric acid. What is the maximum volume of chlorine measured at rtp that could be obtained from 2.00g of manganese (IV) oxide?

10. What mass of potassium nitrate would you have to heat in order to produce 1.00dm<sup>3</sup> of oxygen at rtp.