

Question 26 (4 marks)

A gas is produced when 10.0 g of zinc is placed in 0.50 L of 0.20 mol L⁻¹ nitric acid.

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Calculate the volume of gas produced at 25°C and 100 kPa. Include a balanced chemical equation in your answer.

$$\begin{aligned} \frac{\text{no. of moles } n}{M} & & \text{Volume} &= C \times V \\ & & &= 0.50 \times 0.15288 \\ & & &= \frac{7.6 \times 10^{-2}}{2} \\ &= \frac{10.0\text{g}}{65.41} & &= 0.038 \times 24.79 \\ &= 0.15288 \text{ mol L}^{-1} & &= 0.9476 \text{ g gas produced} \end{aligned}$$

