

18. Appendix F gives $M = 4.00 \times 10^{-3}$ kg/mol (Table 20-1 gives this to fewer significant figures). Using Eq. 20-22, we obtain

$$v_{\text{rms}} = \sqrt{\frac{3RT}{M}} = \sqrt{\frac{3 \left(8.31 \frac{\text{J}}{\text{mol K}} \right) (1000 \text{ K})}{4.00 \times 10^{-3} \text{ kg/mol}}} = 2.50 \times 10^3 \text{ m/s} .$$