Solution to Problem 100D:

From class notes:

$$T = \frac{c^2}{3R} \tag{1}$$

Therefore

$$c = (3RT)^{\frac{1}{2}} = (3(280)(20+273.15))^{\frac{1}{2}} = 496\ m/s \tag{2}$$

Then, using the given expression,

$$\mu = \frac{\rho c \lambda}{3} = \frac{(1.214)(496)(10^{-7})}{3} = 2.01 \times 10^{-5} kg/m\ s \tag{3}$$

This compares fairly well (10% error) with the measured value of $\mu = 1.812 \times 10^{-5} kg/m\ s$.