For rotational energy states,

$F(J) = BJ(J+1)$

$\Rightarrow F_{0\leftarrow 1} = (B, J, 2) - (B, 0, 1) = 2B = 3.246 \times 10^{-3} (J)$

And for diatomic molecule,

$B = \frac{\hbar^2}{2I}$, which $I = \mu R^2$ (μ: reduced mass, R: bond length)

$\Rightarrow R^2 = \frac{\hbar^2}{2B\mu}$

$\mu = \left(\frac{12 \times 31.972}{12 + 31.972}\right) \times 1.667 \times 10^{-27} \fallingdotseq 1.5 \times 10^{-26} (kg)$

$R^2 = \frac{\left(\frac{6.626 \times 10^{-34}}{2\pi}\right)^2}{(3.246 \times 10^{-23}) \cdot (1.5 \times 10^{-26})} \fallingdotseq 2.3 \times 10^{-20}$

$\Rightarrow R \fallingdotseq 1.5 \text{Å}$