

2. We locate the coordinate origin at the center of the carbon atom, and we consider both atoms to be “point particles.” We will use the non-SI units for mass found in Appendix F; since they will cancel they will not prevent the answer from being in SI units.

$$r_{\text{com}} = \frac{(15.9994 \text{ grams/mole})(1.131 \times 10^{-10} \text{ m})}{12.01115 \text{ grams/mole} + 15.9994 \text{ grams/mole}} = 6.46 \times 10^{-11} \text{ m} .$$