Problem 1.7

For O_2, give (a) the molecular weight; (b) the molecular mass; (c) the relative molecular mass; (d) the molar mass.

Solution

Molecular weight and relative molecular mass are synonymous, and because it's relative (to the ^{12}C atom) there are no units. The default unit for molecular mass is the atomic mass unit.

(a) For two oxygen atoms, the molecular weight is $16.00 + 16.00 = 32.00$.

(b) For two oxygen atoms, the molecular mass is $16.00 \text{ amu} + 16.00 \text{ amu} = 32.00 \text{ amu}$.

(c) For two oxygen atoms, the relative molecular mass is $16.00 + 16.00 = 32.00$.

(d) For two oxygen atoms, the molar mass is $16.00 \frac{\text{g}}{\text{mol}} + 16.00 \frac{\text{g}}{\text{mol}} = 32.00 \frac{\text{g}}{\text{mol}}$.