Average Atomic Mass

Atomic Mass: The mass of a single isotope (form) of an atom based on the number of protons (p^+) and neutrons (n^o) [Mass Number]

Average Atomic Mass
The mass of an element (all isotopes together) based on the percent abundance of the isotopes of the element

Percent Abundance: The ratio of one isotope (based on count) to all isotopes of an element.

Isotope Ratio: Comparison of a single isotope to all isotopes

Isotope Ratio: $^{12}_{6}C$: $\frac{989 \text{ atoms}}{1000 \text{ atoms}} = 0.989$

Percent Abundance: $0.989 \cdot 100\% = 98.9\%$

Calculating Average Atomic Mass

Fractional Abundance: Ratio of the mass of each isotope in the avg. atomic mass of element.

Frac. Abund. = Atomic Mass · Isotope Ratio

Isotope: $^{12}_{6}C$ (12amu)

Isotope Ratio: 0.989

Frac Abund: 12amu · 0.989 = 11.87

Average Atomic Mass: sum of the fractional abundances of all isotopes of an atom.

Avg. Atomic = Σ(Fractional Abundance)

Isotope	Isotope Ratio	Mass
$^{12}_{6}C$	0.989	12amu
$^{13}_{6}C$	0.010	13amu
$^{14}_{6}C$	0.001	14amu

Avg. Atomic = (0.989 × 12amu) + (0.010 × 13amu) + (0.001 × 14amu)
= 11.868 + 0.13 + 0.014

= 12.012 amu (12.01 amu rounded)