**Average Atomic Mass** Name:

1. The element Eu occurs naturally as a mixture of 47.82% 151Eu, whose mass is 150.9 amu and 52.18% 153Eu, whose mass is 152.9 amu. Calculate the average atomic mass of Eu.
2. Three isotopes of magnesium occur in nature. Their abundances and masses are listed below. Use this information to calculate the average atomic mass of magnesium.

Isotope % Abundance Mass (amu)

24Mg 78.70 23.98504

25Mg 10.13 24.98584

26Mg 11.17 25.98259

1. Naturally occurring chlorine consists of two isotopes: 75.53% of the atoms in a sample are 35Cl, mass = 34.96885 amu, and the other 24.47% are 37Cl, mass = 36.96590 amu. Calculate the average atomic mass of chlorine.
2. Naturally occurring silicon consists of three isotopes with the abundances indicated below. From the masses and relative abundances of these isotopes, calculate the average atomic mass of naturally occurring silicon.

Isotope % Abundance Mass (amu)

28Si 92.21 27.97693

29Si 4.70 28.97649

30Si 3.09 29.97376

1. Find the average atomic mass of silver if 51.83% of the silver atoms are 107Ag with a mass of 106.905 amu and the rest are 109Ag with a mass of 108.905 amu.
2. Use the masses and relative abundances of the isotopes of krypton given below to find the average atomic mass of krypton.

Isotope % Abundance Mass (amu)

78Kr 0.350 77.920

80Kr 2.27 79.916

82Kr 11.56 81.913

83Kr 11.55 82.914

84Kr 56.90 83.912

86Kr 17.37 85.911

INSIDE THE ATOM

* The number of protons gives us the atomic number.
* The atomic mass (rounded off) equals the # of protons + # of neutrons
* For an atom the # of protons = # of electrons
* For an ion the # of protons ≠ # of electrons, instead

+/- charge = protons + electrons where protons are (+) numbers and

electrons are (-).

* For an isotope the # of protons and electrons are the same, the # of neutrons is different

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Chemical  Symbol | Name | Atomic  # | Atomic  Mass | # of  protons | # of  neutrons | # of  electrons | Overall  Charge | Atom(A)  or Ion(I) |
| H | Hydrogen | 1 | 1 | 1 | 0 | 1 | 0 | A |
| 12C |  |  |  |  |  |  |  |  |
|  |  | 13 |  |  |  |  |  |  |
|  |  |  |  | 16 |  |  | 2- |  |
|  | Helium |  |  |  |  |  |  |  |
|  |  | 29 |  |  |  |  |  |  |
|  |  |  |  | 50 |  |  |  |  |
|  |  | 79 |  |  |  |  |  |  |
| O2- |  |  |  |  |  |  |  |  |
|  |  |  |  | 11 |  |  |  |  |
| Na1+ |  |  |  | 11 |  | 10 |  |  |
| 239U |  |  |  |  |  |  |  |  |
|  | Argon |  |  |  |  |  |  |  |
|  |  |  |  | 80 |  |  |  |  |
| Ni |  |  |  |  |  |  |  |  |
|  | Lead |  |  |  |  |  |  |  |
| Ca2+ |  |  |  |  |  |  |  |  |
|  |  | 33 |  |  |  |  |  |  |
|  |  |  |  | 15 |  | 18 |  |  |
|  | Antimony |  |  |  |  |  |  |  |
| K1+ |  |  |  |  |  |  |  |  |