# The Atomic Mass of Candium

Purpose: To analyze the isotopes of candium and to calculate its atomic mass.

Procedure:

1. Obtain a sample of candium.
2. Separate the isotopes and measure the mass of each isotope.
3. Count the number of each isotope.
4. Record in the table below.

Data Table: (add more columns as necessary)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Type #1 | Type #2 | Type #… | Totals |
| Total mass (g) |  |  |  |  |
| Number of particles |  |  |  |  |
| Average mass (g) |  |  |  |  |
| % abundance (by number of candy) |  |  |  |  |

Post-Lab Questions:

1. Calculate the average mass of each isotope by dividing its total mass by the number of particles of that isotope. (No work needed- Put into chart) Do this for the totals column as well.
2. Calculate the percent abundance of each isotope by dividing its number of particles by the total number of particles and multiplying by 100. (No work needed- Put into chart)
3. What is the weighted atomic mass for candium? Calculate the atomic mass for candium by multiplying the average mass for each isotope by its percent abundance.
4. How is the weighted atomic mass different from the average mass in the totals column? Explain why there is a difference.
5. Titanium has five common isotopes: 46Ti (8.0%), 47Ti (7.8%), 48Ti (73.4%), 49Ti (5.5%), 50Ti (5.3%). What is the average atomic mass of titanium?
6. How are the following isotopes alike? How are they different?

 $\frac{1}{1}H , \frac{2}{1}H , \frac{3}{1}H$

1. Give two examples outside of chemistry where a weighted average could/should be used instead of a simple average.