Average Atomic Mass Lab "BEANIUM"

Joshua Liu

February 17, 2020

After following the procedures given, we created an observation table

Isotope Name	# of Atoms	Total Mass (g)	Qualitative Observations
Rednium	52	33.99	Length of fingernail, Rounded, Smooth, Red
Brownium	106	36.64	Spotted, Round, Oblong, Brown, Smooth
Whitenium	220	43.33	Length of pinky, Rippled surface, White

Total Atoms: 378

Analysis

1. How many isotopes does Beanium have?
Beanium has 3 different isotopes, Rednium, Brownium, and Whitenium.

2. Using the total mass of each isotope and the number of atoms for each isotope, determine the average mass for each individual isotope.

	Rednuim	Brownium	Whitenium
Average Mass (g)	$\frac{33.99}{52} = 0.654$	$\frac{36.64}{106} = 0.346$	$\frac{43.33}{220} = 0.197$

3. Calculate the relative abundance of each isotope
Rednium:

$$\begin{aligned}\text{Relative Abundance} &= \frac{\text{\# of Beans}}{\text{Total \# of Beans}} \times 100\% \\ &= \frac{52}{378} \times 100\% \\ &= 13.76\%\end{aligned}$$

Brownium:

$$\begin{aligned}\text{Relative Abundance} &= \frac{106}{378} \times 100\% \\ &= 28.04\%\end{aligned}$$

Whitenium

$$\begin{aligned}\text{Relative Abundance} &= \frac{220}{378} \times 100\% \\ &= 58.20\%\end{aligned}$$

4. Determine the average atomic mass of Beanium

$$\begin{aligned}\text{Average Atomic Mass} &= 0.654 * 13.76\% + 0.346 * 28.04\% + 0.197 * 58.20\% \\ &= 0.302 \text{ g}\end{aligned}$$

The average atomic mass of Beanium is 0.302 grams.