

Chemistry- "pennium" lab report flashcard



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Atomic Mass of Pentium $(0.50 \times 3.090) + (0.5 \times 2.501) = 1.545 + 1.2505 = 2.7955$ Atomic mass = 2.800 (four sig figs.) Conclusion:

The purpose of this lab was met because the atomic mass of "Pentium" was calculated using the isotopes of Pentium- the ones that were made before 1982 and the ones that were made 1982 and after. The average mass of a pre-1982 penny was 3.090 grams, and the average mass of a post 1982 penny was 2.501 grams.

The relative abundance of the pre 1982 pennies was 50 percent, and the relative abundance of the post 1982 pennies was 50 percent. The atomic mass of Pentium that was calculated using these isotopes was 2.795 grams.

A possible source of error could have been that the scales may have not given the correct mass due to various possible technological issues. This would have affected the accuracy of the data, as well as the calculated atomic mass. The initial hypothesis was supported because the atomic mass, 2.795 grams,

is in fact the average of the average mass of the pre 1982 pennies (3.090 grams) and the post 1982 pennies (2.501 grams). This relates to what we learned in class about how the atomic masses of elements are calculated: by multiplying the relative abundance of the isotope to the mass of the isotope, then add all these values up.

In this lab, the pre 1982 pennies were one isotope of Pentium, and the post 1982 pennies were another isotope of Pentium. The mass of the pre 1982 pennies was different from that of the post 1982 pennies because after

1982, pennies were made with more zinc instead of copper, and zinc has a lower density than copper.

This would have caused the post 1982 pennies to be lighter than the pre 1982 pennies. Additional Research: From 1793-1837, the penny was made of pure copper. Then, a combination of copper, zinc, and nickel was used to manufacture pennies (95 percent copper, 5 percent zinc and in).

From 1857 onwards, the penny was made of 88 percent copper, and 12 percent nickel. This gave it a whitish color rather than a bronze color.

However, the penny reappeared with its bronze color with the 95 percent copper, 5 percent tin and zinc combination. In 1962, zinc was removed from the penny, and it was made of 95 percent copper and 5 percent zinc. In 1982, the composition of the penny was changed to 97.5 percent zinc and 2.5 percent copper. This happened because it cost more than one cent to make a penny after the price of copper rose.

Zinc was cheaper than copper, so the United States made the penny mostly out of zinc to save money.