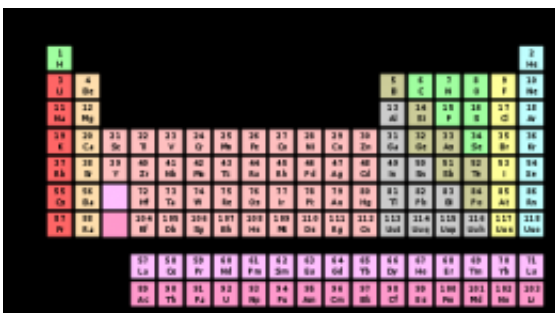


IUPAC votes to change standard atomic weights of 19 elements

September 26 2013, by Bob Yirka



(Phys.org) —The International Union of Pure and Applied Chemistry (IUPAC) has voted to change the standard atomic weight of 19 elements as listed on the Periodic Table of the Elements. The move has come following the annual meeting of a special Union commission held this past August. The changes are being made due to the availability of more precise measurements and have come about as a result of recommendations by the U.S. Geological Survey, commission members and other research organizations.

Weights on the Periodic Table are given as standard atomic weight, which is the average mass of a given element in mass units. One mass unit is equal to 1/12 the mass of a single carbon-12 atom.

Every atom of a single element has, of course, the same number of

protons inside its [nucleus](#)—the number of neutrons can vary however, which identifies the element's various [isotopes](#). Making things a little more difficult for high school chemistry students is that the amount of any given element measurable here on Earth varies—and since average mass is used as a measure, the more plentiful an element is, the more it's influenced by how much can be found and measured. Also influencing its weight listed is the precision of the tools scientist use to study the elements. As tools improve and as more samples are studied adding to the amount in an average, researchers move ever closer to more precise weight listings. When that happens, the Periodic Table needs to be adjusted to show what's been found.

Determining precise atomic weights has become more important as new more precise tools are used to investigate the natural world around us. More precise atomic weights help make archeological estimates more precise for example. Scientists have been publishing tables with atomic weights as far back as 1899 when the International Atomic Weights Committee was convened. The IUPAC has been the body responsible for overseeing international standards for [atomic weights](#) since 1919.

In this latest go round, some elements are shown as heavier, some lighter. The full list of changes will be published in a new table titled "Table of Standard Atomic Weights 2013" in the journal Pure and Applied Chemistry, sometime next year.

More information: [www.iupac.org/news/news-detail ... ghts-revised-v2.html](http://www.iupac.org/news/news-detail...ghs-revised-v2.html)

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