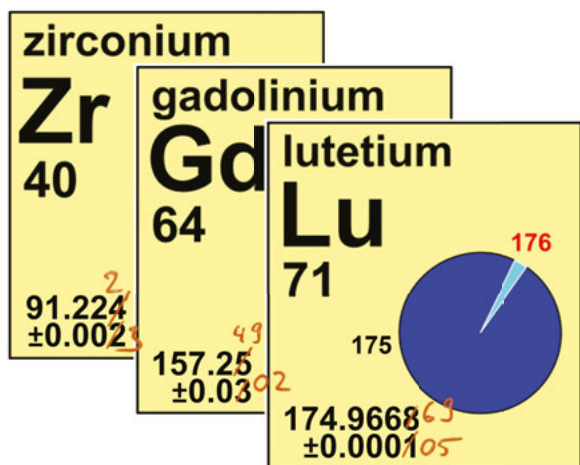




## Standard atomic weights of three technology critical elements revised

**T**he IUPAC Commission on Isotopic Abundances and Atomic Weights (IUPAC CIAAW) regularly reviews literature data, leading to the identification of advancements in measurement science which leads to formal revisions of the recommended atomic weights of the elements (known as the standard atomic weight). This occurs rather infrequently, each element being affected, on average, once every two decades.

The CIAAW met in August 2023 in the Hague, the Netherlands under the chairmanship of Johanna Irrgeher (Montanuniversität Leoben, Austria). Following this meeting, the CIAAW recommends changes to the standard atomic weights of gadolinium (Gd), lutetium (Lu), and zirconium (Zr) based on recent determinations and evaluations of their terrestrial isotopic abundances:

- **gadolinium:** to  $157.249 \pm 0.002$   
from  $157.25 \pm 0.03$
- **lutetium:** to  $174.9668 \pm 0.000105$   
from  $174.9668 \pm 0.0001$
- **zirconium:** to  $91.222 \pm 0.003$   
from  $91.224 \pm 0.002$

The CIAAW notes that the standard atomic weight of gadolinium was last revised in 1969 based on isotopic abundance measurements made in the 1940s. Since then, several studies dedicated to the measurement of the isotopic composition of gadolinium have been published which warrant a revised standard atomic weight. For lutetium and zirconium, there are more recent measurements available and their standard atomic

weights were last revised by IUPAC in 2007 and 1983, respectively. These changes and considerations will be published in *Pure and Applied Chemistry* and can be found online at the website of the IUPAC Commission on Isotopic Abundances and Atomic Weights ([ciaaw.org](http://ciaaw.org)).

The importance of determining precise atomic weights has long been recognized, resulting in the creation of the International Atomic Weights Committee in 1899, now known as the IUPAC Commission on Isotopic Abundances and Atomic Weights.

<<https://iupac.org/standard-atomic-weights-of-three-technology-critical-elements-revised/>>

## IUPAC-Soong Prize for Sustainable Chemistry

**I**UPAC raised \$1 million as an endowment to create a significant award recognizing advances in Sustainable Chemistry.

In a signing ceremony hosted on 11 October by Wen-Chang Chen, President of the National Taiwan University, IUPAC President Ehud Keinan and Raymond Soong, the founder of LITEON Technology, signed an agreement to secure an endowment fund devoted to the recognition of excellence and progress in Sustainable Chemistry. The restricted funds will establish an annual prize of 30 000 US dollars, which will be first presented next year during the IUPAC World Chemistry Congress in Kuala Lumpur, Malaysia. The awardee will also give a public lecture at National Taiwan University within two years of receiving the Prize.

Soong, a strong supporter of academia, recognizes the pivotal role played by a university education in nurturing talent. He hopes that this Award will not only catalyze focus on global emerging challenges but also attract top-tier scholars and researchers from around the world to address these issues.

"IUPAC is grateful for this outstanding donation and humbled by the challenge. The annual award will recognize exceptional scientists who have achieved breakthrough discoveries in sustainable chemistry worldwide. The IUPAC-Soong Prize will encourage further research to meet the most pressing challenges jeopardizing humanity and Planet Earth," said Ehud Keinan.

Raymond Soong said: "Sustainable development is essential for the planet's and humanity's survival as we confront significant threats across social, economic, and environmental dimensions. Addressing these challenges