

Press release

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The EuChemS Periodic Table and Rare Elements in consumer electronics (Smartphones)

The European Chemical Society (EuChemS) released its Periodic Table, focusing on Element Scarcity in 2019, which was designated as the [International Year of the Periodic Table \(IYPT\)](#). The main message of the document is that our resources on this planet are limited. The key aim of the document is to raise awareness to the scarcity of elements used in everyday life. The unusual shape represents the abundance of elements on a logarithmic scale: the bigger the area, the more abundant the element is. In addition, each element is colour-coded in accordance with the issues its continued societal use may pose. The description of the colour coding is found in the [EuChemS Periodic Table Document](#).

Within this periodic table, EuChemS identified 30 elements usually used in smartphones. To consult which elements are these, consult the [EuChemS Periodic Table Document](#).

Rare Elements in Smartphones

Out of the 30 elements, 11 (Lithium, Magnesium, Phosphorus, Tin, Nickel, Copper, Gold, Lead, Tungsten, Neodymium and Antimony) was identified as an element with limited availability, which may cause risks to future supply.

The increased use of 2 elements found in smartphones (Cobalt and Dysprosium) is identified as a rising threat.

The unsustainable usage of 7 elements used in smartphones (Carbon, Yttrium, Gallium, Arsenic, Silver, Indium, Tantalum) will pose a serious risk in the next 100 years.

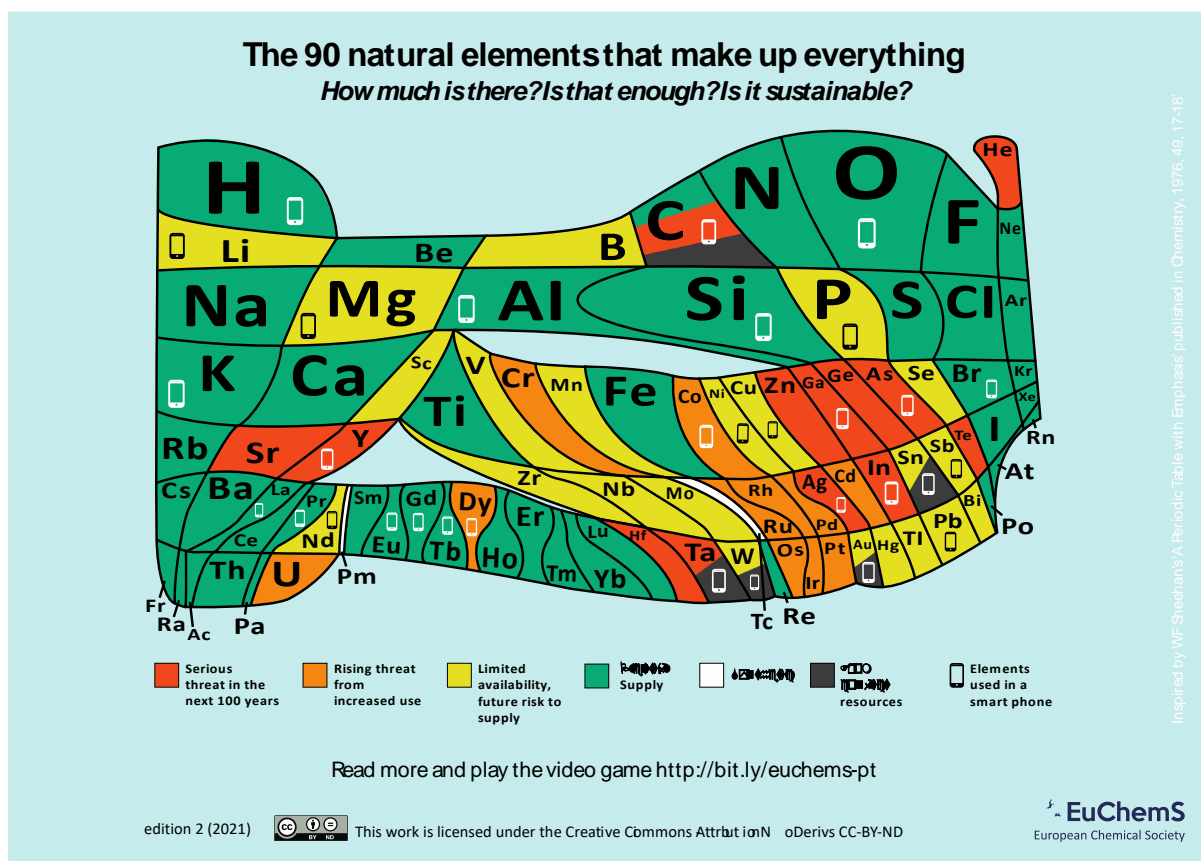
In addition, all 5 elements (Carbon, Tungsten, Tantalum, Gold and Tin) that were identified as originating from conflict resources, are also used in smartphones.

The procurement of many rare elements used in smartphones comes with high energy and material requirements, which generates a significant amount of pollution, and causes greenhouse gas emissions. EuChemS supports Circular Economy initiatives, and organised a [webinar on circular economy](#). Circular Economy has the potential to prevent the harmful consequences of rare material production, as Rare Earths can be recovered from electronic waste. In addition to circular economy, EuChemS also supports the EU “right to repair” regulation, which aims to extend the life of electronic devices instead of focusing on the creation of new ones, thus reducing rare earths usage, and decreasing rare earth procurement.

The EuChemS Periodic Table

The EuChemS Periodic table is a “living document” – it reflects on societal changes; therefore, it is regularly updated. You can find the most recent, 2021 version on the EuChemS webpage. The key change between the 2019 and 2021 version was [the change in the colour of carbon](#). The colour of carbon was changed after a workshop on the Carbon element.

To consider the versatile societal changes, and involve a wide range of interdisciplinary views, EuChemS holds regular Periodic Table Workshops. Each workshop focuses on one element, and on its sustainable uses. In the past, we had workshops on the [Element of Carbon](#), the [Element of Lithium](#), and the [Element of Nitrogen](#). The recordings of these workshops can be found on our [YouTube Channel](#). The following workshop is scheduled to be held in the European Parliament in 2023, and it will be focusing on the Element of Phosphorus. The discussions during these workshops are considered when the EuChemS Periodic Table is updated.



ABOUT EUCHEMS AND CONTACTS

EuChemS, the European Chemical Society, is an umbrella organisation representing national Chemical Societies and other chemistry-related organisations in Europe. EuChemS aims to nurture a platform for scientific discussion and to provide a single, unbiased European voice on key policy issues in Chemistry and related fields. Through the promotion of Chemistry and by providing expert and scientific advice, EuChemS aims to take part in the solution to today's major societal challenges.

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