

We are pleased to announce that for 2021 the “Mineral of the Year” award has been assigned to seaborgite. The mineral was found and fully characterized by a research team led by Anthony R. Kampf, from the Mineral Sciences Department of the Natural History Museum of Los Angeles County, Los Angeles, CA 90007, USA.

Seaborgite was found underground in the Blue Lizard mine, Red Canyon, White Canyon District, San Juan Co., Utah, USA, where it occurs on a thick crust of gypsum overlaying a matrix comprised mostly of quartz crystals. Associated minerals are copiapite, ferrinatrite, ivsite, metavoltine, römerite, and other currently unknown minerals.

Seaborgite occurs as long flattened prisms (or blades), light-yellow in color and up to 0.2 mm in length. Crystals typically occur in radiating sprays, and looks very nice (Fig. 1)

The ideal chemical formula of seaborgite is $\text{LiNa}_6\text{K}_2(\text{UO}_2)(\text{SO}_4)_5(\text{SO}_3\text{OH})(\text{H}_2\text{O})$, hence is an uranyl sulfate mineral. Seaborgite is the only known mineral species containing both lithium and uranium as species-forming elements, and it is also one of the few minerals containing three distinct alkali metals.

Seaborgite is triclinic, with space group: $P-1$, and unit cell parameters $a = 5.4511(4)$, $b = 14.4870(12)$, $c = 15.8735(15)$ Å, $\alpha = 76.295(5)$, $\beta = 81.439(6)$, $\gamma = 85.511(6)^\circ$. Its crystal structure has been refined by single-crystal X-ray diffraction data to $R = 3.77\%$. The structure of seaborgite (Fig. 2) is new and unprecedented, although it is based on the same uranyl sulfate cluster that is topologically identical to the one occurring in the crystal structure of blueizardite.

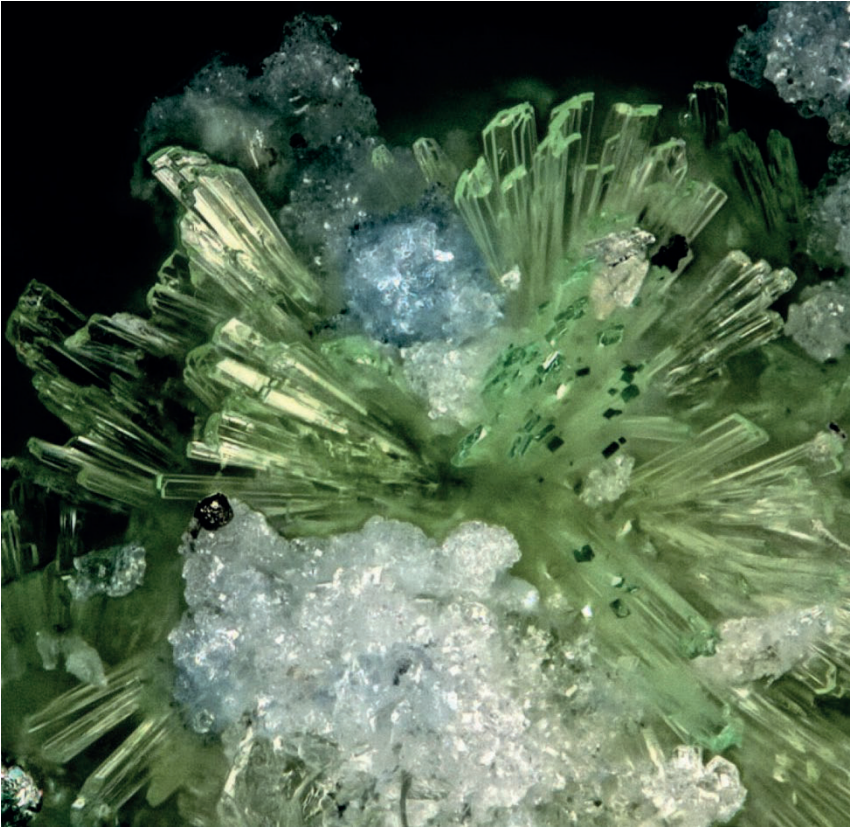
The mineral was named after Glenn Seaborg (1912-1999), an American chemist who was involved in the synthesis, discovery and investigation of 10 transuranium elements, including seaborgium. These studies led him to win the 1951 Nobel Prize in Chemistry.

Seaborgite is the third “Mineral of the Year” winner having its type locality in the USA. The previous winners were ophirite (2014, after the Ophir mine, Tooele Co., Utah) and rowleyite (2017, after the Rowley mine, Maricopa Co., Arizona).

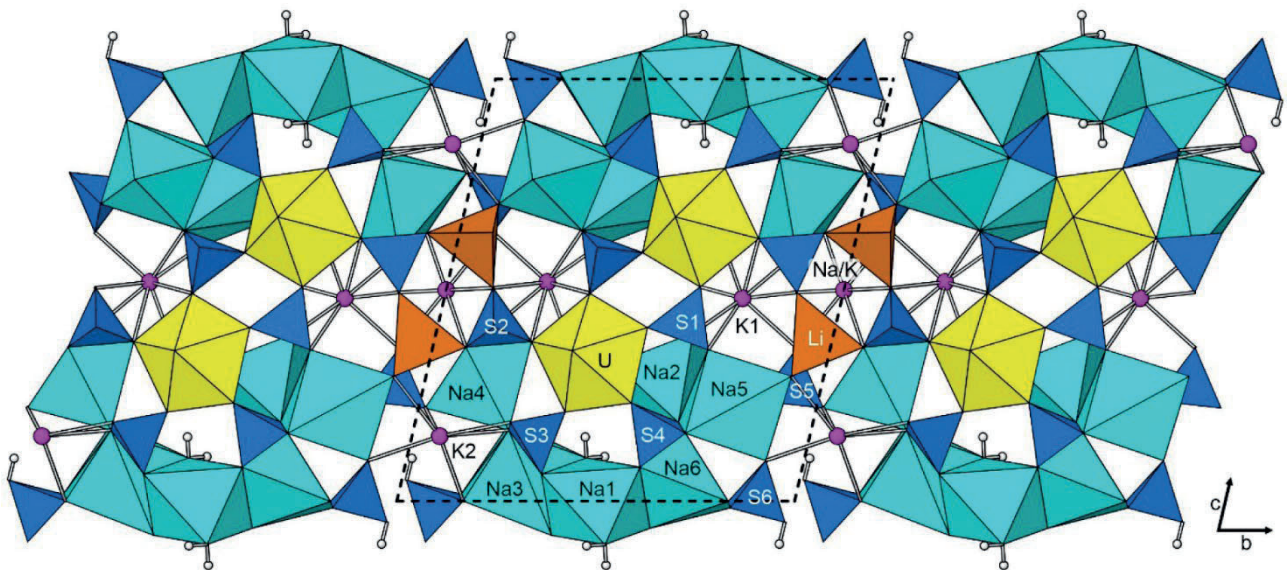
The Blue Lizard mine was a prolific mineralogical site, being the type locality for 22 other new mineral species besides seaborgite.

The full description of the new mineral has been published in the *American Mineralogist* [Kampf, A.R., Olds, T.A., Plášil, J., Marty, J., Perry, S.N., Corcoran, L., Burns, P.C. (2021): Seaborgite, $\text{LiNa}_6\text{K}_2(\text{UO}_2)(\text{SO}_4)_5(\text{SO}_3\text{OH})(\text{H}_2\text{O})$, the first uranyl mineral containing lithium. *American Mineralogist*, **106**, 105-111].

<https://pubs.geoscienceworld.org/msa/ammin/article/106/1/105/593632/Seaborgite-LiNa6K2-UO2-SO4-5-SO3OH-H2O-the-First?guestAccessKey=195c8c0d-8405-407e-8990-0f002e75bade>



Diverging group of seborgite blades. Associated mineral is ferrinatrite.



The crystal structure of seborgite as seen down [100].