THE PROBABLE IDENTITY OF URANOThALLITE AND LIEBIGITE. ¹

ESPER S. LARSEN

U. S. Geological Survey

The available descriptions of uranothallite and liebigite indicate them to be very similar, except in chemical composition. Three fairly satisfactory analyses of uranothallite are available and the composition must be near 2CaO·UO₃·3CO₂·10H₂O. The only published analysis of liebigite was made in duplicate on 85 and 65 mg of the mineral and appears to lead to a different formula, CaO·UO₃·2CO₂·20H₂O.

An optical study made by the author shows, however, that either the two minerals are identical, or many of the specimens supposed to be liebigite are merely uranothallite. Three specimens labeled liebigite² and two labeled uranothallite³ have the following characteristic optical properties:

Optically ±, 2E = 65° ± 3°, 2V = 42° ± 2°. Dispersion ρ > v easily perceptible. Nearly colorless in section and with a cleavage normal to X. α = 1.500 ± 0.003; β = 1.503 ± 0.003; γ = 1.537 ± 0.003.

The author has been unable to get any of the original liebigite; a very small grain would be sufficient to determine the optical properties. However, it is at least certain that much so-called liebigite is uranothallite, and it is not unlikely that the original analysis of liebigite, made on so small an amount of material, is in error, and that liebigite is identical with uranothallite. Altho the name liebigite has priority, it is recommended that the name uranothallite be retained for the mineral since the first accurate description was published under this name. Its composition may be accepted as 2CaO·UO₃·3CO₂·10H₂O, and liebigite should not be given the rank of a species unless it is shown to be distinct by further study.

For the specimens on which this study was based the author is indebted to Dr. Wherry and the United States National Museum, Mr. Gratacap and the American Museum of Natural History, Professor Ford and Yale University, and Colonel Roebling.

¹ Published with permission of the Director of the U. S. Geological Survey.
² Two from Schneeberg, Saxony (U. S. Nat. Mus. Cat. No. 45643, and Yale Univ. Brush Coll., No. 2995) and one from Joachimsthal, Bohemia (Am. Mus. Nat. Hist., N. Y.)
³ Both from Joachimsthal, Bohemia; one U. S. Nat. Mus. Cat. No. 52057 and the other in Colonel Roebling’s collection.