Löweite $Na_{12}Mg_7(SO_4)_{13}\cdot 15H_2O$

Crystal Data: Hexagonal. *Point Group:* $\overline{3}\ 2/m$. Anhedral granular.

Physical Properties: *Fracture:* Conchoidal. Hardness = 2.5–3 D(meas.) = 2.36–2.42 D(calc.) = 2.35 Soluble in H_2O, slightly bitter taste.

Optical Properties: Transparent. *Color:* Colorless, reddish yellow if included iron oxides; colorless in transmitted light. *Luster:* Vitreous.
Optical Class: Uniaxial (–). $\omega = 1.490$ $\epsilon = 1.471$

Cell Data: *Space Group:* $R\overline{3}$. $a = 18.866(2)$ $c = 13.434(2)$ Z = 3

X-ray Powder Pattern: Synthetic.
10.37 (100), 4.294 (65), 4.046 (60), 2.458 (50), 3.277 (45), 2.698 (45), 3.175 (40)

Chemistry:

	(1)	(2)
SO_3	52.53	52.97
MgO	14.31	14.36
Na_2O	18.58	18.92
H_2O	14.80	13.75
Total	100.22	100.00

(1) Ischl, Austria. (2) $Na_{12}Mg_7(SO_4)_{13}\cdot 15H_2O$.

Occurrence: An uncommon mineral in marine salt deposits; in efflorescences and crusts in saline playa deposits; a volcanic sublimation product.

Association: Anhydrite, gypsum, vanthoffite, blödite, langbeinite, aphthitalite, epsomite, pentahydrite, hexahydrite, kieserite, mirabilite, starkeyite, thénardite.

Distribution: From Ischl, Hallstatt, and Hall, Austria. In Germany, in the Stassfurt-Aschersleben-Bernburg potash district, Saxony-Anhalt; at Merkers, Thuringia; from Hattorf, near Philippsthal, and at Neuhof-Ellers, Hesse. In playas of the La Mancha region, Spain. Found on volcanoes on the Kamchatka Peninsula, Russia. In Turkey, from the Great Konya Basin, near Çakmak, Konya Province. In the "Q" Basin [Jianghan Plain] potash deposits, Hubei Province, China. In the USA, in the Carlsbad potash district, Eddy Co., New Mexico; from northwest of Grand Junction, Mesa Co., Colorado.

Name: To honor Alexander Löwe (1808–1895), Austrian chemist, Chief Assayer at the Mint, Vienna, Austria.

Type Material: Natural History Museum, Vienna, Austria, A.x.583–A.x.585.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 446–447 (2) Fang, J.H. and P.D. Robinson (1970) Crystal structures and mineral chemistry of double-salt hydrates: II. The crystal structure of loeweite. Amer. Mineral., 55, 378–386. (3) (1977) NBS Mono. 25, 14.