

Leonite

$K_2Mg(SO_4)_2 \cdot 4H_2O$

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Crystal Data: Monoclinic. *Point Group:* $2/m$. Crystals elongated along [001] and flattened on {100}, with the prism zone well developed and complex terminations, to 7 cm; commonly granular.

Physical Properties: *Fracture:* Conchoidal. Hardness = 2.5–3 D(meas.) = 2.20
D(calc.) = 2.20 Soluble in H_2O , taste slightly bitter.

Optical Properties: Transparent. *Color:* Colorless, pale yellow, honey-yellow; colorless in transmitted light. *Luster:* Waxy to vitreous.

Optical Class: Biaxial (+). *Orientation:* $Y = b$; $Z \wedge a = \text{small}$. $\alpha = 1.479\text{--}1.480$
 $\beta = 1.482\text{--}1.483$ $\gamma = 1.487\text{--}1.486$ $2V(\text{meas.}) = 90(2)^\circ$

Cell Data: *Space Group:* $C2/m$ (synthetic). $a = 11.769(3)$ $b = 9.539(3)$ $c = 9.889(3)$
 $\beta = 95.31(2)^\circ$ $Z = 4$

X-ray Powder Pattern: Carlsbad, New Mexico, USA.

3.42 (100), 3.04 (48), 2.38 (47), 3.49 (41), 3.31 (36), 2.88 (27), 5.88 (22)

Chemistry:

	(1)	(2)
SO ₃	43.76	43.67
MgO	10.37	10.99
K ₂ O	25.62	25.69
KCl	0.50	
H ₂ O	19.57	19.65
Total	99.82	100.00

(1) Leopoldshall, Germany. (2) $K_2Mg(SO_4)_2 \cdot 4H_2O$.

Occurrence: An uncommon secondary mineral of metamorphic origin in marine salt deposits; may occur in volcanic fumaroles.

Association: Kainite, polyhalite, halite, sylvite (New Mexico, USA).

Distribution: In Germany, in the Stassfurt potash district, as at Westeregeln, Leopoldshall, Aschersleben, Vienenburg, Riedel-Hänigsen, Saxony-Anhalt; large crystals from the Sigmundshall mine, Bokeloh bei Wunstorf, Lower Saxony. At Vesuvius, Campania, Italy. From Stebnyk, Poland. In the Carlsbad potash district, Eddy Co., New Mexico, USA.

Name: To honor Leo Strippelmann, Director of the salt works at Westeregeln, Germany.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 450–451. (2) Madsen, B.M. (1966) Loewite, vanthoffite, bloedite, and leonite from southeastern New Mexico. U.S. Geol. Surv. Prof. Paper 550-B, B125–B129. (3) Jarosch, D. (1985) Crystal structure of leonite. Zeits. Krist., 173, 75–79 (in German with English abs.).