

Crystal Data: Orthorhombic. *Point Group:* 222. Rare as crystals, prismatic along {110}, to 8 cm; typically as fibrous crusts, woolly efflorescences, botryoidal to reniform masses, stalactitic. *Twinning:* Rare on {110}.

Physical Properties: *Cleavage:* {010}, perfect; {101}, distinct. *Fracture:* Conchoidal. Hardness = 2–2.5 D(meas.) = 1.677(2) (synthetic). D(calc.) = 1.677 Dehydrates readily in dry air; soluble in H₂O, with a bitter taste.

Optical Properties: Transparent to translucent. *Color:* Colorless to white, pale pink, pale green; colorless in transmitted light. *Luster:* Vitreous, silky in fibrous aggregates. *Optical Class:* Biaxial (-). *Orientation:* X = a; Y = c; Z = b. *Dispersion:* r < v; weak. α = 1.432 β = 1.455 γ = 1.461 2V(meas.) = 52°

Cell Data: *Space Group:* P2₁2₁2₁. a = 11.876(2) b = 12.002(2) c = 6.859(1) Z = 4

X-ray Powder Pattern: Synthetic. (ICDD 36-419). 4.216 (100), 4.200 (75), 5.98 (30), 5.34 (30), 2.658 (25), 5.31 (20), 2.880 (20)

Chemistry:	(1)	(2)
SO ₃	32.41	32.48
MgO	16.26	16.36
H ₂ O	51.32	51.16
rem.	0.11	
Total	100.10	100.00

(1) Ashcroft, Canada. (2) MgSO₄·7H₂O.

Polymorphism & Series: Forms two series, with goslarite and with morenosite.

Occurrence: As efflorescences on the walls of mines, caves, and outcrops of sulfide-bearing magnesian rocks; a product of evaporation at mineral springs and saline lakes; a hydration product of kieserite and langbeinite; rarely a fumarolic sublimate.

Association: Melanterite, gypsum, halotrichite, pickeringite, alunogen, rozenite (efflorescences); mirabilite (lacustrine evaporites).

Distribution: Widespread and common; a few varied localities include: from Epsom, Surrey, England. At Sedlitz and Saldschitz, Czech Republic. From Špania Dolina (Herrengrund), Slovakia. On Vesuvius, Campania, Italy. At volcanoes on the Kamchatka Peninsula, Russia. In the USA, large masses in Mammoth Cave, Kentucky; at the Mt. Princeton hot spring, Chalk Creek, Chaffee Co., Colorado; at Leona Heights, Alameda Co., California; very large crystals from salt lakes on Kruger Mountain, near Oroville, Okanogan Co., Washington; in Idaho, at the Buckhorn mine, Lemhi Co. and the Claytonia mine, Owyhee Co. From Ashcroft, British Columbia, and in the Dundas quarry, Dundas, Ontario, Canada.

Name: For the occurrence at Epsom, England.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 509–513. (2) Calleri, M., A. Gavetti, G. Ivaldi, and M. Rubbo (1984) Synthetic epsomite, MgSO₄·7H₂O: absolute configuration and surface features of the complementary {111} forms. Acta Cryst., 40, 218–222.