

Crystal Data: Monoclinic. *Point Group:* 2/*m*. Crystals are equant to thick tabular on {100}, showing {100}, {010}, {011}, {421}, { $\bar{4}21$ }, many other forms, to 10 cm; commonly in aggregates of crystals, fibrous, in crusts, granular massive.

Physical Properties: *Cleavage:* On {001}, perfect. *Fracture:* Smooth to splintery. *Tenacity:* Brittle. Hardness = 2.5–3 D(meas.) = 2.15 D(calc.) = 2.24 Soluble in H₂O; taste salty and bitter.

Optical Properties: Transparent to translucent. *Color:* Colorless, may be gray, blue, violet, yellow, pink from inclusions; colorless in transmitted light. *Luster:* Vitreous. *Optical Class:* Biaxial (–). *Pleochroism:* If blue, may show X = violet; Y = blue; Z = yellow. *Orientation:* X = a; Y = b; Z $\wedge$ c = 13°. *Dispersion:* r > v, very weak. α = 1.494 β = 1.505 γ = 1.516 2V(meas.) = ~90°

Cell Data: *Space Group:* C2/*m*. a = 19.72(2) b = 16.23(1) c = 9.53(1) β = 94°55(5)' Z = 16

X-ray Powder Pattern: Calculated from the crystal structure. (ICDD 25-1237). 7.372 (100), 3.080 (86), 7.771 (83), 8.115 (69), 3.029 (66), 3.048 (42), 4.616 (37)

Chemistry:

	(1)	(2)
SO ₃	32.50	32.16
MgO	16.72	16.19
Na ₂ O	1.39	
K ₂ O	16.02	18.91
Cl	13.51	14.24
H ₂ O	20.95	21.71
insol.	1.74	
–O = Cl ₂	3.05	3.21
Total	99.78	100.00

(1) Eddy Co., New Mexico, USA; recalculated to oxides from a partial elemental analysis.

(2) KMg(SO₄)Cl·3H₂O.

Occurrence: A secondary mineral in marine potash deposits, formed due to metamorphism or resolution by ground waters; rarely a volcanic sublimate.

Association: Sylvite, halite, carnallite, kieserite, polyhalite, langbeinite, picromerite.

Distribution: An ore of potassium and magnesium. In Germany, from Stassfurt, 34 km south of Magdeburg, Saxony-Anhalt, and many other places nearby; in the Werra-Fulda district, Hesse and Thuringia; on the Asse Mountain, near Wolfenbüttel, and at the Kaliwerk Hansa Empelde, near Hannover, Saxony. From Racalmuto, Realmonte, and elsewhere on Sicily, Italy. Large deposits in the Kalusz and Stebnyk areas, Carpathian Mountains, Ukraine. At volcanos on the Kamchatka Peninsula, Russia. From Lake Inder, Kazakhstan. In the USA, in the Carlsbad potash district, Eddy Co., New Mexico.

Name: From the Greek for *recent*, alluding to its recent origin.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 594–596. (2) Robinson, P.D., H.H. Fang, and Y. Ohya (1972) The crystal structure of kainite. Amer. Mineral., 57, 1325–1332.