

Calcurmolite**Ca(UO₂)₃(MoO₄)₃(OH)₂•11H₂O**

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Crystal Data: n.d. *Point Group:* n.d. As prismatic crystals, to 1.5 mm, in bundles or radial platy aggregates; as crusts of vermiform spherical aggregates of platy crystals.

Physical Properties: Hardness = 2–3 D(meas.) = n.d. D(calc.) = n.d. Radioactive; strong yellowish green fluorescence under UV.

Optical Properties: Translucent. *Color:* Deep honey-yellow, bright yellow.
Optical Class: Biaxial (-). *Pleochroism:* X = colorless; Y = pale yellow; Z = yellow.
 $\alpha = 1.760\text{--}1.770$ $\beta = 1.816\text{--}1.827$ $\gamma = 1.856\text{--}1.863$ 2V(meas.) = n.d. 2V(calc.) = 76°

Cell Data: *Space Group:* n.d. Z = n.d.

X-ray Powder Pattern: Kadzharan deposit, Armenia.

7.80 (100), 3.21 (80), 3.89 (60), 8.33 (50), 1.99 (50), 1.855 (40), 4.29 (30)

Chemistry:	(1)	(2)	(3)
MoO ₃	23.83	21.62	27.64
UO ₃	47.73	65.48	54.93
SiO ₂	6.18		
(Al + Fe) ₂ O ₃	2.76		
CaO	3.30	3.20	3.59
H ₂ O	12.90	9.59	13.84
Total	96.70	99.89	100.00

(1) Kyzylsai Mo–U deposit, Kazakhstan; after deduction of impurities, corresponds to Ca_{1.06}(UO₂)₃(MoO₄)_{2.98}(OH)₂•10.88H₂O. (2) Rabéjac deposit, France; by electron microprobe, H₂O by gas chromatography. (3) Ca(UO₂)₃(MoO₄)₃(OH)₂•11H₂O.

Occurrence: A secondary mineral in the lower oxidized zone of Mo–U deposits.

Association: Uraninite, uranophane, uranospinite, halloysite, betpakdalite, jarosite, ferrimolybdate (Kadzharan deposit, Armenia); umohoite, uranophane (Rabéjac deposit, France); yingjiangite, studtite, kiviuite, tengchongite, autunite (Tongbiguan village, China).

Distribution: From the Kadzharan molybdenum deposit, upper Okhcha River, Kafan district, Armenia. In the Kyzylsai Mo–U deposit, Chu-Ili Mountains, southwestern Balkhash region, Kazakhstan. At Tongbiguan village, Yingjiang Co., Yunnan Province, China. From the Rabéjac and Mas-d'Alary uranium deposits, south of Lodève, Hérault, France.

Name: For the essential chemical components, CALCIum, URanium, and MOLybdenum.

Type Material: n.d.

References: (1) Rudnitskaya, L.S. (1958) Calcium uranium molybdate, Ca(UO₂)₃(MoO₄)₃(OH)₂•8H₂O. Proc. 2nd Internat. Conf. Peaceful Uses of Atomic Energy, Geneva, 2, 286 [kadzharanite = calcurmolite]. (2) Fedorov, O.V. (1963) The second find of calcium uranium molybdate in the USSR. Zap. Vses. Mineral. Obshch., 92, 464–465 (in Russian). (3) Deliens, M. (1992) Etude comparative des calcurmolites de Rabéjac (Lodève, Hérault, France) et de l'Union Soviétique. Ann. Soc. Géol. Belg., 115, 91–97 (in French with English abs.). (4) Pekov, I.V. (1998) Minerals first discovered on the territory of the former Soviet Union. Ocean Pictures, Moscow, 52–53.