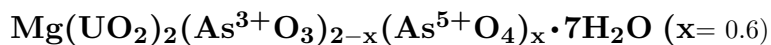


Seelite

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Crystal Data: Monoclinic. *Point Group:* $2/m$. Crystals are tabular, flattened on {100} or {001}, or elongated [010], showing {100}, {001}, {010}, {011}, {01 $\bar{1}$ }, to 1 mm; typically in spherules, rosettes, and divergent needles.

Physical Properties: *Fracture:* Irregular. Hardness = ~ 3 D(meas.) = 3.70
D(calc.) = 3.60–3.71 Radioactive.

Optical Properties: Semitransparent. *Color:* Canary-yellow, apple-green. *Streak:* White. *Luster:* Vitreous.

Optical Class: Biaxial (-). *Pleochroism:* Strong; X = Y = yellow; Z = colorless. *Orientation:* $Z \wedge c = 5(1)^\circ$. *Dispersion:* $r \gg v$, inclined. $\alpha = 1.602\text{--}1.610$ $\beta = 1.730\text{--}1.737$
 $\gamma = 1.740\text{--}1.753$ 2V(meas.) = $30^\circ\text{--}41^\circ$ 2V(calc.) = $34^\circ\text{--}37.5^\circ$

Cell Data: *Space Group:* $C2/m$. $a = 18.194\text{--}18.207$ $b = 7.062\text{--}7.071$ $c = 6.661\text{--}6.670$
 $\beta = 99.65^\circ\text{--}99.70^\circ$ Z = 2

X-ray Powder Pattern: Rabéjac deposit, France.

9.02 (100), 4.48 (80), 3.01 (60), 2.849 (60), 3.28 (50), 4.90 (40), 4.00 (40)

Chemistry:

	(1)	(2)
UO ₃	62.43	62.75
As ₂ O ₅	6.67	25.52
As ₂ O ₃	13.41	
MgO	4.09	4.39
H ₂ O	13.40	[7.34]
Total	[100.00]	[100.00]

(1) Rabéjac deposit, France; by electron microprobe, original total 104.03%, As³⁺:As⁵⁺ from crystal-structure analysis, H₂O by CHN analyzer; corresponds to Mg_{0.97}(UO₂)_{2.08}(As³⁺O₃)_{1.30}(As⁵⁺O₄)_{0.56}•7.08H₂O. (2) Talmessi mine, Iran; by electron microprobe, H₂O by difference, corresponds to Mg_{1.00}(UO₂)_{2.01}(AsO₄)_{2.03}•4H₂O.

Occurrence: A rare mineral in the oxidation zone of uranium-bearing hydrothermal deposits.

Association: Annabergite, talmessite, zaratite, uranospinite (Talmessi mine, Iran); zeunerite (Rabéjac deposit, France).

Distribution: In the Talmessi mine, 35 km west of Anarak, Iran. From the Rabéjac uranium deposit, seven km south-southeast of Lodève, Hérault, France.

Name: To honor Paul Seel (1904–1982) and Hilde Seel (1902–1987), American collectors of microscopic minerals, Philadelphia, Pennsylvania, USA.

Type Material: Royal Institute of Natural Sciences, Brussels, Belgium, RC4191; University of Pierre and Marie Curie, Paris, France.

References: (1) Bariand, P., B. Bachet, C. Brassy, O. Medenbach, M. Deliens, and P. Piret (1993) Seelite, a new uranium mineral from the Talmessi mine, Iran, and Rabejac, France. Mineral. Record, 24, 463–467. (2) (1994) Amer. Mineral., 79, 1012 (abs. ref. 1). (3) Piret, P. and J. Piret-Meunier (1994) Structure de la seelite de Rabejac (France). Eur. J. Mineral., 6, 673–677 (in French with English abs.).