

Schröckingerite**NaCa₃(UO₂)(SO₄)(CO₃)₃F•10H₂O**

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Crystal Data: Triclinic, pseudohexagonal. *Point Group:* $\bar{1}$. Rare pseudohexagonal crystals, to 6 mm, with prominent {001}, very narrow {100}, {101}, {201}, {102}, {104}, {108}; micaceous, scaly, rosettes, globular aggregates, in crusts and efflorescences.

Physical Properties: *Cleavage:* Perfect on {001}. *Tenacity:* Flexible. Hardness = 2.5 D(meas.) = 2.544–2.550 D(calc.) = 2.547 Radioactive; strong yellowish green fluorescence under UV.

Optical Properties: Transparent. *Color:* Greenish yellow. *Luster:* Subvitreous, pearly on {001}.

Optical Class: Biaxial (–). *Pleochroism:* X = colorless, pale yellow; Y = Z = greenish yellow.

Orientation: X \simeq c; Y \simeq b; Z \simeq a. $\alpha = 1.489$ – 1.496 $\beta = 1.537$ – 1.545 $\gamma = 1.538$ – 1.545 2V(meas.) = 0°–22.5°

Cell Data: *Space Group:* $P\bar{1}$. $a = 9.634(1)$ $b = 9.635(1)$ $c = 14.391(2)$ $\alpha = 91.41(1)^\circ$ $\beta = 92.33(1)^\circ$ $\gamma = 120.26(1)^\circ$ Z = 2

X-ray Powder Pattern: Synthetic.

7.26 (10), 4.796 (8), 8.48 (7), 2.876 (7), 14.28 (3), 5.421 (2), 4.167 (2)

Chemistry:	(1)	(2)	(1)	(2)
UO ₃	31.44	32.19	F	2.15
SO ₃	9.17	9.01	H ₂ O	20.15
CO ₂	14.20	14.86	insol.	1.03
CaO	18.14	18.93	–O = F ₂	0.90
Na ₂ O	3.63	3.49		
			Total	99.01
				100.00

(1) Wamsutter, Wyoming, USA; insoluble SiO₂ 0.08%, R₂O₃ 0.95%; corresponds to Na_{1.06}Ca_{2.92}(UO₂)_{0.98}(CO₃)_{2.91}(SO₄)_{1.03}F_{1.02}•10.10H₂O. (2) NaCa₃(UO₂)(CO₃)₃(SO₄)F•10H₂O.

Occurrence: An uncommon alteration product of uraninite in the oxidized zone of uranium deposits; may be of post-mine origin.

Association: Gypsum, andersonite, bayleyite, swartzite, albrechtschraufite, liebigite, uraninite, dolomite.

Distribution: May be an ore of uranium. From the Evangelista vein, Jáchymov (Joachimsthal), and the Rozna uranium deposit, Czech Republic. On the Radhausberg, near Bad Gastein, Austria. At the Geevor mine, St. Just, Cornwall, England. In the Gerstenegg-Sommerloch cable tunnel, north of the Grimsel Pass, Bern, Switzerland. In the USA, from Lost Creek, about 60 km north-northwest of Wamsutter, Sweetwater Co., Wyoming; in Arizona, in the Hillside mine, about 5.5 km north of Bagdad, Eureka district, Yavapai Co., and the Jack Daniels No. 1 and Foley Bros. No. 5 mines, Cameron area, Coconino Co.; large crystals in the Grants district, McKinley Co., New Mexico. In Utah, from the Shinarump No. 1 and 3 mines, Seven Mile Canyon, on the Crabapple claim, Green River district, near Moab, from the McCoy group, and at the Parco No. 25 mine, Yellow Cat group, Thompsons district, Grand Co., at the Hideout mine, White Canyon district, San Juan Co., and elsewhere; in the Troublesome Formation, Middle Park, Grand Co., and at a number of other places in Colorado. Large crystals from the Soberanía mine, 15 km east of Mendoza, Mendoza Province, and elsewhere in Argentina. A number of additional localities are more poorly characterized.

Name: To honor Julius Schröckinger von Neudenberg (1813–1882), Austrian geologist who originally found the mineral at Jáchymov, Czech Republic.

Type Material: Natural History Museum, Vienna, Austria, A.a.6740.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 236. (2) Frondel, C. (1958) Systematic mineralogy of uranium and thorium. U.S. Geol. Sur. Bull. 1064, 121–126. (3) Mereiter, K. (1986) Crystal structure and crystallographic properties of a schröckingerite from Joachimsthal. *Tschermaks Mineral. Petrog. Mitt.*, 35, 1–18.

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