Grimselite $K_3Na(UO_2)(CO_3)_3 \cdot H_2O$

Crystal Data: Hexagonal. *Point Group:* $\bar{6}m2$. Prismatic hexagonal crystals, showing dominant $\{10\bar{1}0\}$, $\{10\bar{1}1\}$, $\{0001\}$, to 0.3 mm, commonly anhedral in fine granular crusts.

Physical Properties: *Fracture:* Conchoidal. *Tenacity:* Brittle. Hardness = 2–2.5 D(meas.) = 3.30 (synthetic). D(calc.) = 3.27 Radioactive; soluble in H_2O.

Optical Properties: Translucent to transparent. *Color:* Yellow. *Streak:* Pale yellow. *Luster:* [Vitreous.]
Optical Class: Uniaxial (–) or weakly biaxial (–). *Pleochroism:* Distinct; O = yellow; E = colorless. $\omega = 1.601(2)$ $\epsilon = 1.480(2)$

Cell Data: *Space Group:* $P\bar{6}2c$. $a = 9.30(2)$ $c = 8.26(2)$ $Z = 2$

X-ray Powder Pattern: Grimsel region, Switzerland.
5.76 (10), 8.09 (8), 3.08 (8), 0.985 (8), 3.65 (7b), 2.86 (7), 2.68 (7)

Chemistry: (1) Identity confirmed by concurrence of optical properties and X-ray diffraction pattern with those of the synthetic compound; microchemical and electron microprobe analyses confirm compositional dominance of K, Na, U, and CO_2 in natural material.

Occurrence: A rare secondary mineral in veins in mineralized granodiorite.

Association: Schröckingerite, baylissite, monohydrocalcite, calcite.

Distribution: From a cable tunnel between Gerstenegg and Sommerloch, Oberhasli, north of Grimsel Pass, Bern, Switzerland.

Name: For the Grimsel region of Switzerland, which produced the first specimens.

Type Material: Institute for Mineralogy and Crystal Chemistry, University of Stuttgart, Stuttgart, Germany.

References: (1) Walenta, K. (1972) Grimselit, ein neues Kalium–Natrium–Uranylkarbonat aus dem Grimselgebiet (Oberhasli, Kt. Bern, Schweiz). Schweiz. Mineral. Petrog. Mitt., 52(1), 93–108 (in German with English abs.). (2) (1973) Amer. Mineral., 58, 139–140 (abs. ref. 1).