

Crystal Data: Tetragonal. *Point Group:* 4/m. As prismatic to acicular crystals, to 0.2 mm, elongated along [001]; typically in radiating and fan-shaped aggregates.

Physical Properties: *Cleavage:* Perfect on {110}, less perfect on {001}. *Fracture:* Uneven. *Tenacity:* Brittle. *Hardness* = ~ 2 *D(meas.)* = n.d. *D(calc.)* = 4.018 *Fluoresces* strong yellowish green under LW and SW UV.

Optical Properties: Transparent to translucent. *Color:* Yellowish green, colorless in thin section. *Streak:* Greenish white. *Luster:* Vitreous. *Optical Class:* Uniaxial (-). $\omega = 1.634(3)$ $\varepsilon = 1.597(3)$

Cell Data: *Space Group:* P4/n. $a = 14.9704(10)$ $c = 6.8170(5)$ $Z = 2$

X-ray Powder Pattern: Geschieber vein, Svornost mine, Jáchymov district, Czech Republic. 6.856 (100), 6.237 (85), 10.64 (76), 4.742 (37), 3.749 (27), 2.9409 (17), 7.486 (9)

Chemistry:	(1)	(2)
K ₂ O	12.42	12.64
SO ₃	18.04	17.19
V ₂ O ₅	4.30	4.88
UO ₃	61.46	61.42
H ₂ O	[3.90]	3.87
Total	100.12	100.00

(1) Geschieber vein, Svornost mine, Jáchymov district, Czech Republic; average of 7 electron microprobe analyses supplemented by Raman spectroscopy, H₂O calculated from structure; corresponds to K_{4.87}(U_{0.99}O₂)₄(S_{1.04}O₄)₄(V_{0.87}O₅)(H₂O)₄. (2) K₅(UO₂)₄(SO₄)₄(VO₅)(H₂O)₄.

Occurrence: A rare post-mining, secondary mineral in the underground workings in a polymetallic hydrothermal vein type deposit.

Association: Adolfpateraite, schoepite, čejkaite, zippeite, gypsum.

Distribution: From the Geschieber vein, fifth level of the Svornost (Einigkeit) mine, Jáchymov ore district, Western Bohemia, Czech Republic.

Name: Honors Johannes Mathesius (1504-1565), Lutheran priest and theologian. Mathesius lived and served in Jáchymov, first as a teacher at the Latin lyceum, then as a pastor. His publications on mining include "Sarepta oder Bergpostil".

Type Material: Department of Mineralogy and Petrology, National Museum, Prague, Czech Republic (PIP 7/2013).

References: (1) Plášil, J., F. Veselovský, J. Hloušek, R. Škoda, M. Novák, J. Sejkora, J. Čejka, P. Škácha, and A.V. Kasatkin (2014) Mathesiusite, K₅(UO₂)₄(SO₄)₄(VO₅)(H₂O)₄, a new uranyl vanadate-sulfate from Jáchymov, Czech Republic. *Amer. Mineral.*, 99, 625-632.