Adolfpateraite $K(UO_2)(SO_4)(OH)(H_2O)$

Crystal Data: Monoclinic. *Point Group*: 2/*m*. As hemispherical crystalline aggregates, to 3 mm.

Physical Properties: *Cleavage*: None. *Fracture*: Uneven. *Tenacity*: Brittle. Hardness = ~ 2
D(meas.) = n.d. D(calc.) = 4.24 Green fluorescence under LW UV.

Optical Properties: Transparent to translucent. *Color*: Sulfur-yellow to greenish yellow.
Streak: Pale yellow. *Luster*: Vitreous.
Optical Class: Biaxial (n.d.). α = 1.597(2) β = n.d. γ = 1.659(2)
Pleochroism: *X* = colorless, *Y* = n.d., *Z* = yellow.

Cell Data: *Space Group*: $P2_1/c$. a = 8.0462(1) b = 7.9256(1) c = 11.3206(2)
β = 107.726(2)° Z = 4

X-ray Powder Pattern: Svornost shaft, Jáchymov district, western Bohemia, Czech Republic.
5.386 (100), 5.218 (85), 7.658 (76), 3.718 (46), 3.700 (37), 3.489 (27), 2.747 (17)

Chemistry:

	(1)	(2)
K_2O	9.86	10.70
SO_3	18.17	18.19
UO_3	63.66	64.97
H_2O	[5.80]	6.14
Total	97.49	100.00

(1) Svornost shaft, Jáchymov district, western Bohemia, Czech Republic; average of 4 electron microprobe analyses, H_2O calculated, presence of OH, H_2O, SO_4 and $UO^{2+}{}_2$ confirmed by IR and Raman spectroscopy; corresponding to $K_{0.94}(UO_2)_{1.00}(SO_4)_{1.02}(OH)_{0.90}(H_2O)_{1.00}$.
(2) $K(UO_2)(SO_4)(OH)(H_2O)$.

Occurrence: A secondary mineral in the oxidized zone of a uranium deposit.

Association: Gypsum, schoepite, čejkaite.

Distribution: From the Geschieber vein, fifth level of the Svornost (Einigkeit) shaft, Jáchymov (Sankt Joachimsthal) ore district, western Bohemia, Czech Republic.

Name: Honors Adolf Patera (1819-1894), Czech chemist, mineralogist, and metallurgist, who invented the technology for processing uranium ores from Jáchymov for the production of uranium-based colors.

Type Material: Department of Mineralogy and Petrology, National Museum in Prague, Czech Republic (P1P 3/2011).

References: (1) Plášil, J., J. Hloušek, F. Veselovský, K. Fejfarová, M. Dušek, R. Škoda, M. Novák, J. Čejka, J. Sejkora, and P. Ondruš (2012) Adolfpateraite, $K(UO_2)(SO_4)(OH)(H_2O)$, a new uranyl sulphate mineral from Jáchymov, Czech Republic. Amer. Mineral., 97, 447-454.