Pauflerite $VO(SO_4)$

Crystal Data: Orthorhombic. *Point Group*: 2/*m* 2/*m* 2/*m*. As prismatic crystals to 0.1 mm.

Physical Properties: *Cleavage*: None. *Tenacity*: Brittle. *Fracture*: n.d. Hardness = 3-4
D(meas.) = 3.36(4) D(calc.) = 3.299 Non-fluorescent.

Optical Properties: Transparent. *Color*: Light green. *Streak*: White. *Luster*: Vitreous.
Optical Class: Biaxial (+). α = 1.731(4) β = 1.778(2) γ = 1.845(4) 2V(meas.) ≈ 90° 2V(calc.) = 83°
Orientation: *X* = *a*. *Pleochroism*: *X* = light green, *Y* = bluish green, *Z* = light green-blue.

Cell Data: *Space Group*: *Pnma*. *a* = 7.3890(13) *b* = 6.2740(11) *c* = 7.0788(11) Z = 4

X-Ray Diffraction Pattern: Calculated pattern.
3.28 (100), 3.14 (73), 3.54 (31), 5.11 (27), 3.19 (22), 4.70 (18), 2.845 (18)

Chemistry:

	(1)	(2)
VO_2	50.40	50.88
SO_3	49.30	49.12
Total	99.70	100.00

(1) Tolbachik volcano, Kamchatka Peninsula, Russia; average electron microprobe analysis; corresponds to $V_{0.99}S_{1.01}O_5$. (2) $VO(SO_4)$.

Occurrence: Sublimate at volcanic fumaroles.

Association: Shcherbinaite.

Distribution: First cinder cone of the North breach of the Great Fissure eruption, Tolbachik volcano, Kamchatka Peninsula, Russia. At Colima volcano, State of Colima, Mexico.

Name: Honors Professor Peter *Paufler*, Technical University of Dresden, for his contributions to physical and structural crystallography and mineralogy.

Type Material: Mineralogical Museum, Department of Mineralogy, St. Petersburg University, Russia.

References: (1) Krivovichev, S.V., L.P. Vergasova, S.N. Britvin, S.K. Filatov, V. Kahlenberg, and V.V. Ananiev (2007) Pauflerite, β-$VO(SO_4)$, a new mineral species from the Tolbachik volcano, Kamchatka Peninsula, Russia. Can. Mineral., 45, 921-927. (2) Ostrooumov, M. and Y. Taran (2016) Vanadium, V - a new native element mineral from the Colima volcano, State of Colima, Mexico, and implications for fumarole gas composition. Mineral. Mag., 80(2), 371-382.