Schlegelite $Bi_7O_4(MoO_4)_2(AsO_4)_3$

Crystal Data: Orthorhombic. *Point Group*: 2/*m* 2/*m* 2/*m*. As spherical aggregates, to 1 mm, of lath-like crystals, to 0.3 mm, elongated along [100], flattened on {010}, and displaying {010}, {001} and {100}.

Physical Properties: *Cleavage*: Good ‖{010} and {001}. *Fracture*: Uneven. *Tenacity*: Brittle. Hardness = 3.5 VHN = 285(20) (25 g load). D(meas.) = n.d. D(calc.) = 7.23

Optical Properties: Transparent to translucent. *Color*: Yellow. *Streak*: Pale yellow. *Luster*: Adamantine.
Optical Class: Biaxial (-). α(calc.) = 2.22 β = 2.255(calc.) γ(calc.) = 2.26 2V(calc.) = 40(5)°
Orientation: *X* = *a*, *Y* = *b*, *Z* = *c*.
R_1-R_2: (470) 16.20-15.31 $(4.43\text{-}4.21)_{oil}$, (546) 15.41-14.53 $(3.96\text{-}3.86)_{oil}$, (589) 15.06-14.21 $(3.83\text{-}3.64)_{oil}$, (650) 14.76-13.74 $(3.68\text{-}3.51)_{oil}$

Cell Data: Space Group: *Pnca*. *a* = 5.302(1) *b* = 16.154(3) *c* = 23.981(5) Z = 4

X-ray Powder Pattern: Pucher shaft, near Schneeberg, Saxony, Germany.
2.688 (100), 2.996 (69), 2.963 (48), 3.413 (37), 2.001 (28), 1.657 (14), 1.887 (13)

Chemistry:

	(1)
Bi_2O_3	70.20
PbO	0.48
CaO	0.05
P_2O_5	0.51
As_2O_5	15.38
V_2O_5	0.21
MoO_3	12.13
Total	98.96

(1) Pucher shaft, near Schneeberg, Saxony, Germany; average of 27 electron microprobe analyses; corresponds to $(Bi_{6.78}Ca_{0.02}Pb_{0.05})_{\Sigma=6.85}O_{3.51}(MoO_4)_{1.90}[(AsO_4)_{3.01}(PO_4)_{0.16}(VO_4)_{0.05}]_{\Sigma=3.22}$.

Occurrence: As crystal masses in vugs in quartz, formed either in an oxygenated weathering or oxygenated hydrothermal environment.

Association: Quartz, petitjeanite, pucherite, bismuth, sillenite.

Distribution: From the dumps of the Pucher shaft, 3.6 km south-west of Schneeberg, Saxony, Germany.

Name: Honors Fritz Schlegel (b. 1938), a dedicated mineral collector and finder of the new species, for his contributions to the mineralogy of the Schneeberg area, Saxony, Germany.

Type Material: The State Museum for Mineralogy and Geology, Dresden, Germany (19625Sa).

References: (1) Krause, W., H.-J. Bernhardt, and H. Effenberger (2006) Schlegelite, $Bi_7O_4(MoO_4)_2(AsO_4)_3$, a new mineral from Schneeberg, Saxony, Germany. Eur. J. Mineral., 18, 803-811.