Struvite-(K) $KMgPO_4 \cdot 6H_2O$

Crystal Data: Orthorhombic. *Point Group*: *mm*2. As acicular prismatic crystals, to 0.7 mm; elongated on [010] with wedge-shaped terminations, displaying {001}, {010}, {101}, {012}, {110}, {111}, $\{01\bar{2}\}$. *Twinning:* Contact twins on (101) common.

Physical Properties: *Cleavage*: None. *Fracture*: Conchoidal. *Tenacity*: n.d. Hardness = n.d. D(meas.) = n.d. D(calc.) = 1.864

Optical Properties: Transparent. *Color*: Colorless. *Streak*: White. *Luster*: Vitreous. *Optical Class*: Biaxial (+). α = 1.490(2) β = 1.493(2) γ = n.d. $2V_Z$ = large (> 70°). *Dispersion*: $r < v$, weak. *Orientation*: (OAP) $\perp$ [010]; β parallel a.

Cell Data: *Space Group*: $Pmn2_1$ (by analogy to struvite). a = 6.903(3) b = 6.174(2) c = 11.146(3) Z = 2

X-ray Powder Pattern: Lengenbach, Binntal, Switzerland.
4.255 (100), 3.271 (90), 4.136 (80), 2.650 (70), 2.905 (70), 2.699 (50), 1.9541 (50)

Chemistry: Lengenbach, Binntal, Switzerland; Qualitative EDS analyses confirmed major K, Mg, P, and traces of Sb, Fe, and Cu. Structure refinement confirmed the pure K end-member.

Occurrence: Of either late hydrothermal or secondary origin (Switzerland); an alteration product of animal bones and circulating fluids (Austria).

Association: Rathite, dolomite (Switzerland); newberyite (Austria).

Distribution: Lengenbach, Binntal, Switzerland; Rossblei, Schladminger Tauern, Styria, Austria.

Name: As the potassium equivalent of struvite.

Type Material: Natural History Museum, Basel, Switzerland, S176.

References: (1) Graeser, S., W. Postl, H.-P. Bojar, P. Berlepsch, T. Armbruster, T. Raber, K. Ettinger, and F. Walter (2008) Struvite-(K), $KMgPO_4 \cdot 6H_2O$, the potassium equivalent of struvite—a new mineral. Eur. J. Mineral., 20, 629–633. (2) (2009) Amer. Mineral., 94, 403-404 (abs. ref. 1).