Baylissite $K_2Mg(CO_3)_2 \cdot 4H_2O$

Crystal Data: Monoclinic, pseudo-orthorhombic. *Point Group:* $2/m$. In fine-grained crusts of anhedral crystals. *Twinning:* Polysynthetic, probably universal.

Physical Properties: *Fracture:* Conchoidal. Hardness = 2–3 D(meas.) = 2.06(1) (synthetic). D(calc.) = 2.04 Decomposes in H_2O and in a humid atmosphere.

Optical Properties: Transparent to translucent. *Color:* Colorless.
Optical Class: Biaxial (+). $\alpha = 1.462(2)$ $\beta = [1.483]$ $\gamma = 1.531(2)$. 2V(meas.) = ∼64°

Cell Data: *Space Group:* $P2_1/n$ (synthetic). $a = 11.404(4)$ $b = 6.228(2)$ $c = 6.826(2)$ $\beta = 99.66(2)°$ Z = 2

X-ray Powder Pattern: Gerstenegg-Sommerloch tunnel, Switzerland.
2.98 (10b), 3.12 (8), 2.47 (8), 2.56 (7), 2.06 (7), 6.33 (6), 4.20 (4)

Chemistry: (1) Identity determined by microchemical determination of the presence of K and Mg, in conjunction with optical and X-ray data similar to the synthetic compound.

Occurrence: A secondary mineral in fractures in aplite granite and granodiorite.

Association: Grimselite, schröckingerite, calcite, monohydrocalcite.

Distribution: In the Gerstenegg-Sommerloch cable tunnel, north of the Grimsel Pass, Bern, Switzerland.

Name: Honoring Noel Stanley Bayliss, Professor of Chemistry, University of Western Australia, Nedlands, Western Australia, who characterized the synthetic compound.

Type Material: Institute for Mineralogy and Crystal Chemistry, University of Stuttgart, Stuttgart, Germany.

References: (1) Walenta, K. (1976) Baylissit, ein neues Karbonatmineral aus den Schweizer Alpen. Schweiz. Mineral. Petrog. Mitt., 56, 187–194 (in German with English abs.). (2) (1977) Mineral. Abs., 28, 208 (abs. ref. 1). (3) Bucat, R.B., J.M. Patrick, A.H. White, and A.C. Willis (1977) Crystal structure of baylissite, $K_2Mg(CO_3)_2, 4H_2O$. Australian J. Chem., 30, 1379–1382.