

**Günterblässite****(K, Ca, Ba, Na, □)<sub>3</sub>Fe[(Si, Al)<sub>13</sub>O<sub>25</sub>(OH, O)<sub>4</sub>]·7H<sub>2</sub>O**

**Crystal Data:** Orthorhombic. *Point Group:* *mm*2. As lamellar to tabular crystals to 1.5 mm and their near parallel or sheaf-like clusters.

**Physical Properties:** *Cleavage:* Perfect on (001), less perfect on (100) and (010). *Tenacity:* Brittle. *Fracture:* n.d. Hardness = 4 D(meas.) = 2.18(1) D(calc.) = 2.17

**Optical Properties:** Transparent. *Color:* Colorless, pale yellow, brown. *Streak:* White. *Luster:* n.d.

*Optical Class:* Biaxial (+).  $\alpha = 1.488(2)$   $\beta = 1.490(2)$   $\gamma = 1.493(2)$   $2V(\text{meas.}) = 80(5)^\circ$   $2V(\text{calc.}) = 79^\circ$  *Orientation:*  $Z = c$ .

**Cell Data:** *Space Group:* *Pnm*2<sub>1</sub>.  $a = 6.528(1)$   $b = 6.970(1)$   $c = 37.216(5)$   $Z = 2$

**X-Ray Diffraction Pattern:** Mount Rother Kopf, near Gerolstein, Rheinland-Pfalz, Germany. 6.532 (100), 3.062 (91), 6.263 (67), 2.996 (66), 2.955 (63), 2.763 (60), 3.244 (49)

<b>Chemistry:</b>	(1)
Na <sub>2</sub> O	0.40
K <sub>2</sub> O	5.18
MgO	0.58
CaO	3.58
BaO	4.08
FeO	3.06
Al <sub>2</sub> O <sub>3</sub>	13.98
SiO <sub>2</sub>	52.94
<u>H<sub>2</sub>O</u>	<u>15.2</u>
Total	98.99

(1) Mount Rother Kopf, near Gerolstein, Rheinland-Pfalz, Germany; average electron microprobe analysis supplemented by IR spectroscopy, H<sub>2</sub>O by gas chromatography; corresponds to Na<sub>0.15</sub>K<sub>1.24</sub>Ba<sub>0.30</sub>Ca<sub>0.72</sub>Mg<sub>0.16</sub>Fe<sup>2+</sup><sub>0.48</sub>[Si<sub>9.91</sub>Al<sub>3.09</sub>O<sub>25.25</sub>(OH)<sub>3.75</sub>]·7.29H<sub>2</sub>O.

**Occurrence:** Encrusts the walls of miaroles in alkali basalt.

**Association:** Nepheline, leucite, augite, phlogopite, åkermanite, magnetite, perovskite, a lamprophyllite-group mineral, götzenite, chabazite-K, chabazite-Ca, phillipsite-K, calcite.

**Distribution:** At Mount Rother Kopf, near Gerolstein, Rheinland-Pfalz, Germany.

**Name:** Honors *Günter Blass* (b. 1943), an amateur mineralogist and specialist in electron microprobe and X-ray diffraction.

**Type Material:** A.E. Fersman Mineralogical Museum, RAS, Moscow, Russia (4107/1).

**References:** (1) Chukanov, N.V., R.K. Rastsvetaeva, S.M. Aksenov, I.V. Pekov, N.V. Zubkova, S.N. Britvin, D.I. Belakovskiy, W. Schüller, and B. Ternes (2012) Günterblässite, (K,Ca)<sub>3-x</sub>Fe[(Si,Al)<sub>13</sub>O<sub>25</sub>(OH, O)<sub>4</sub>]·7H<sub>2</sub>O, a new mineral: The first phyllosilicate with triple tetrahedral layer. *Geology of Ore Deposits*, 54, 656-662. (2) Rastsvetaeva, R.K., S.M. Aksenov, and N.V. Chukanov (2012) Crystal structure of günterblässite, a new mineral with a triple tetrahedral layer. *Doklady Chemistry*, 442, 57-62.