

**Crystal Data:** Orthorhombic. *Point Group:*  $2/m\ 2/m\ 2/m$ . As platy crystals to 5 mm displaying {010}, {100} and {001}; as blocky and rounded crystals to 8 mm; in aggregates to 6 cm.

*Twinning:* Cruciform to 3.5 mm.

**Physical Properties:** *Cleavage:* Indistinct, presumably on {010} and in a direction across (010).

*Fracture:* Uneven. *Tenacity:* Brittle. Hardness = 4.5  $D(\text{meas.}) = 2.482(5)$   $D(\text{calc.}) = 2.495$

**Optical Properties:** Transparent to translucent. *Color:* White or tan. *Streak:* White.

*Luster:* Vitreous to porcelaneous.

*Optical Class:* Biaxial (-).  $\alpha = 1.500(2)$   $\beta = 1.512(2)$   $\gamma = 1.515(2)$   $2V(\text{meas.}) = 55(10)^\circ$

$2V(\text{calc.}) = 53^\circ$  *Dispersion:*  $r < v$ , weak.

**Cell Data:** Space Group:  $Pmmn$ .  $a = 9.4640(5)$   $b = 14.2288(6)$   $c = 6.9940(4)$   $Z = 1$

**X-ray Powder Pattern:** Wasenalp, near Isenwegg peak, Ganter valley, Switzerland.

5.61 (100), 6.26 (83), 3.005 (79), 6.98 (74), 3.170 (62), 3.933 (60), 3.191 (50)

Chemistry:	(1)	(2)
Na <sub>2</sub> O	0.37	
K <sub>2</sub> O	0.12	
BaO	21.55	21.72
Al <sub>2</sub> O <sub>3</sub>	15.03	14.44
SiO <sub>2</sub>	49.86	51.08
<u>H<sub>2</sub>O</u>	<u>12.57</u>	<u>12.76</u>
Total	99.50	100.00

(1) Wasenalp, near Isenwegg peak, Ganter valley, Switzerland; average of 5 electron microprobe analyses, H<sub>2</sub>O by the modified Penfield method; corresponds to

$\text{Na}_{0.17}\text{K}_{0.04}\text{Ba}_{2.00}(\text{Al}_{4.19}\text{Si}_{11.81}\text{O}_{32})\text{H}_{19.85}\text{O}_{9.93}$ . (2)  $\text{Ba}_2(\text{Al}_4\text{Si}_{12}\text{O}_{32})\cdot 10\text{H}_2\text{O}$ .

**Mineral Group:** Zeolite group.

**Occurrence:** In quartz veins cutting zoisite-, celsian-, and armenite-bearing gneiss.

**Association:** Armenite, quartz, dickite, chlorite.

**Distribution:** At Wasenalp, near Isenwegg peak, Ganter valley, Simplon region, Switzerland.

**Name:** Honors Martin Andres (b. 1965), the Swiss mineral collector and amateur mineralogist, who discovered the armenite vein locality of Wasenalp.

**Type Material:** Geological Museum of Lausanne, Switzerland (MGL 093284).

**References:** (1) Chukanov, N.V., N.V. Zubkova, N. Meisser, S. Ansermet, S. Weiss, I.V. Pekov, D.I. Belakovskiy, S.A. Vozchikova, S.N. Britvin, and D.Yu. Pushcharovky (2018) Martinandresite,  $\text{Ba}_2(\text{Al}_4\text{Si}_{12}\text{O}_{32})\cdot 10\text{H}_2\text{O}$ , a new zeolite from Wasenalp, Switzerland. *Phys. Chem. Minerals*, 45(6), 511-521. (2) (2019) *Amer. Mineral.*, 104(5), 782 (abs. ref 1).