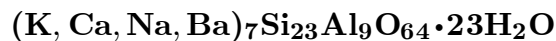


Merlinoite



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Crystal Data: Orthorhombic, pseudotetragonal. *Point Group:* $2/m\ 2/m\ 2/m$. As crystals, to 4 mm, forming radiating fibrous spheroidal aggregates.

Physical Properties: Hardness = n.d. $D(\text{meas.}) = 2.14\text{--}2.27$ $D(\text{calc.}) = 2.19\text{--}2.23$

Optical Properties: Transparent. *Color:* White.

Optical Class: Biaxial (-). *Orientation:* $X = b$; $Y = c$; $Z = a$. *Dispersion:* $r > v$. $\alpha = 1.499$
 $\beta = 1.500$ $\gamma = 1.501$ $2V(\text{meas.}) = 56^\circ$

Cell Data: *Space Group:* $Immm$; $I4/mmm$ pseudotetragonal. $a = 14.116(7)$
 $b = 14.229(6)$ $c = 9.946(6)$ $Z = [1]$

X-ray Powder Pattern: Cupaello, Italy.

3.176 (100), 7.115 (90), 7.080 (88), 3.258 (44), 3.241 (41), 5.359 (40), 3.226 (38)

Chemistry:

	(1)
SiO ₂	51.82
Al ₂ O ₃	18.04
Fe ₂ O ₃	0.72
CaO	3.18
BaO	2.49
Na ₂ O	0.65
K ₂ O	7.53
LOI	15.57
Total	[100.00]

(1) Cupaello, Italy; by electron microprobe, H₂O taken as loss on ignition, recalculated to 100.00%; corresponding to $(\text{K}_{4.21}\text{Ca}_{1.49}\text{Na}_{0.55}\text{Ba}_{0.43}\text{Fe}_{0.24})_{\Sigma=6.92}\text{Si}_{22.68}\text{Al}_{9.31}\text{O}_{64} \cdot 22.74\text{H}_2\text{O}$.

Mineral Group: Zeolite group.

Occurrence: A secondary mineral in veins and cavities of silica-undersaturated volcanic rocks (Cupaello, Italy); an alteration product of cataclastized pegmatitic rocks in a differentiated alkalic massif (Khibiny massif, Russia); in manganese nodules (Indian Ocean).

Association: Phillipsite, apophyllite, chabazite, calcite.

Distribution: In the Cupaello quarry, near Santa Rufina, and at Valle Beachella, Sacrofano, near Rome, Lazio, Italy. In the Höwenegg quarry, Hegau, Baden-Württemberg, and in the Ortenberg quarry, Vogelsberg, Hesse, Germany. In Russia, in the Khibiny massif, Kola Peninsula. From the Central Indian basin, Indian Ocean. In Searles Lake, San Bernardino Co., California, USA.

Name: In honor of Stefano Merlino (1938–), Professor of Crystallography, University of Pisa, Pisa, Italy.

Type Material: Municipal Museum of Natural History, Milan, 18078; University of Modena, Modena, Italy; Natural History Museum, Paris, France; National Museum of Natural History, Washington, D.C., USA, 137087.

References: (1) Passaglia, E., D. Pongiluppi, and R. Rinaldi (1977) Merlinoite, a new mineral of the zeolite group. *Neues Jahrb. Mineral., Monatsh.*, 355–364. (2) (1978) *Amer. Mineral.*, 63, 598 (abs. ref. 1). (3) Galli, E., G. Gottardi, and D. Pongiluppi (1979) The crystal structure of the zeolite merlinoite. *Neues Jahrb. Mineral., Monatsh.*, 1–9. (4) Khomyakov, A.P., T.A. Kurova, and G.N. Muravitskaya (1981) Merlinoite, $(\text{K, Ba})_2\text{Al}_3\text{Si}_5\text{O}_{16} \cdot 5\text{H}_2\text{O}$, first occurrence in the USSR. *Doklady Acad. Nauk SSSR*, 256, 172–174 (in Russian). (5) (1981) *Chem. Abs.*, 94, 106675 (abs. ref. 4).

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