

Melcherite**Ba₂Na₂Mg[Nb₆O₁₉]·6H₂O**

Crystal Data: Hexagonal. *Point Group:* $\bar{3}$. As irregular tabular crystals to 200 μm .

Physical Properties: *Cleavage:* Perfect on {0001}. *Fracture:* n.d. *Tenacity:* n.d. Hardness = n.d. D(meas.) = n.d. D(calc.) = 3.733

Optical Properties: Transparent. *Color:* Beige. *Streak:* White. *Luster:* Vitreous. *Optical Class:* Uniaxial (?). $n(\text{calc.}) = 1.924$.

Cell Data: Space Group: $R\bar{3}$. $a = 9.0117(6)$ $c = 23.3986(16)$ $Z = 3$

X-ray Powder Pattern: Jacupiranga mine, Cajati county, São Paulo state, Brazil.

7.81 (100), 3.250 (33), 2.165 (30), 3.904 (22), 3.852 (21), 7.41 (14), 2.952 (13)

Chemistry:	(1)	(2)
K ₂ O	0.70	3.88
Na ₂ O	4.30	2.60
BaO	20.66	12.44
CaO	0.83	4.41
MgO	3.00	3.15
MnO	0.09	0.28
Al ₂ O ₃	0.08	0.02
Nb ₂ O ₅	61.74	65.79
SiO ₂	0.02	0
H ₂ O	8.35	8.90
Total	99.77	101.47

(1) Jacupiranga mine, Cajati county, São Paulo state, Brazil; average of 4 electron microprobe analyses, H₂O calculated from structure; corresponds to (Ba_{1.75}K_{0.19}) $\Sigma=1.94$ (Na_{1.80}Ca_{0.19}) $\Sigma=1.99$ (Mg_{0.96}Mn_{0.02}Al_{0.02}) $\Sigma=1.00$ Nb_{6.02}O_{19.00}·6H₂O. (2) Do.; average of 8 electron microprobe analyses, H₂O calculated from structure; corresponds to (Ba_{0.99}K_{1.00}) $\Sigma=1.99$ (Na_{1.02}Ca_{0.96}) $\Sigma=1.98$ (Mg_{0.95}Mn_{0.05}) $\Sigma=1.00$ Nb_{6.02}O_{19.00}·6H₂O.

Occurrence: In a vug in dolomitic carbonatite.

Association: Dolomite, calcite, 'pyrochlore', magnetite, pyrrhotite, tochilinite, pyrite, fluorapatite.

Distribution: From the Jacupiranga mine, Cajati county, São Paulo state, Brazil.

Name: Honors Geraldo Conrado Melcher (1924-2011), a pioneer in Jacupiranga carbonatite studies.

Type Material: Geosciences Museum, Institute of Geosciences, University of São Paulo, Brazil (DR982) and the University of Arizona Mineral Museum, Tucson, Arizona, USA, RRUFF Project (R130752).

References: (1) Andrade, M.B., D. Atencio, L.A.D. Menezes Filho, and J. Spratt (2018) Melcherite, trigonal Ba₂Na₂Mg[Nb₆O₁₉]·6H₂O, the second natural hexaniobate, from Cajati, São Paulo, Brazil: Description and crystal structure. *Mineral. Mag.*, 82(1), 111-120. (2) (2019) *Amer. Mineral.*, 104(9), 1364 (abs. ref 1).