

Cerchiarait-(Mn)**Ba₄Mn₄(Si₄O₁₂)O₂(OH)₄Cl₂[Si₂O₃(OH)₄]**

Crystal Data: Tetragonal. *Point Group:* 4/m 2/m 2/m. As prismatic to acicular crystals, to 2 mm, elongated on [001]; as radiating aggregates to 3 mm.

Physical Properties: *Cleavage:* None. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = ~ 4.5 D(meas.) = 3.62 VHN = 296 (50 g load). D(calc.) = 3.70

Optical Properties: Transparent. *Color:* Deep green. *Streak:* Pale green. *Luster:* Vitreous. *Optical Class:* Uniaxial (+). $\omega = 1.745(5)$ $\epsilon = 1.765(5)$

Cell Data: *Space Group:* I4/mmm. $a = 14.223(6)$ $c = 6.141(4)$ $Z = 2$

X-ray Powder Pattern: Cerchiaro mine, La Spezia Province, Liguria, Italy. 3.011 (VS), 3.319 (S), 2.619 (S), 10.15 (M), 5.63 (M), 4.417 (M), 2.577 (M)

Chemistry:	(1)
BaO	43.29
Mn ₂ O ₃	19.57
Fe ₂ O ₃	2.09
Al ₂ O ₃	1.02
SiO ₂	26.18
Cl	3.93
-O = Cl ₂	0.89
H ₂ O	[4.81]
Total	100.00

(1) Cerchiaro mine, La Spezia Province, Liguria, Italy; average of 42 electron microprobe analyses, H₂O by difference; corresponding to Ba_{3.83}(Mn³⁺_{3.36}Fe³⁺_{0.35}Al_{0.27})_{Σ=3.98}Si_{5.91}O_{17.26}[(OH)_{7.24}Cl_{1.50}]_{Σ=8.74}.

Occurrence: Developed in small fractures and veinlets within metacherts of an ophiolitic sequence during prehnite-pumpellyite facies metamorphism.

Association: Quartz, pectolite, orientite, calcite.

Distribution: From the Cerchiaro mine, near Faggiona village, Borghetto Vara, Vara Valley, La Spezia Province, Liguria, Italy.

Name: For the analog of *cerchiarait* with dominant manganese in the octahedral structural site.

Type Material: Department for the Study of the Territory and its Resources, University of Genoa, Italy.

References: (1) Basso, R., G. Lucchetti, L. Zefiro, A. Palenzona (2000) Cerchiarait, a new natural Ba-Mn-mixed-anion silicate chloride from the Cerchiaro mine, northern Apennines, Italy. *Neues Jahrb. Mineral. Mon.*, 373-384. (2) (2001) *Amer. Mineral.*, 86, 197 (abs. ref. 1). (3) Kampf, A.R., A.C. Roberts, K.E. Venance, C. Carbone, D. Belmonte, G.E. Dunning, and R.E. Walstrom (2013) Cerchiarait-(Fe) and cerchiarait-(Al), two new barium cyclosilicate chlorides from Italy and California, USA. *Mineral. Mag.*, 77, 69-80. (4) (2016) *Amer. Mineral.*, 101, 235-236 (abs. ref. 3).