

Crystal Data: Tetragonal. *Point Group:* 4/m. As aggregates of prismatic crystals to 5 cm displaying {100}, {110} with striations along [001] and {331}.

Physical Properties: *Cleavage:* None. *Tenacity:* n.d. *Fracture:* n.d. *Hardness:* = 6.5
D(meas.) = 3.40(3) D(calc.) = 3.44 (Mg rich); 3.49 (Mn rich)

Optical Properties: Transparent. *Color:* Dark red with a lilac hue. *Streak:* n.d. *Luster:* Vitreous.
Optical Class: Uniaxial (-). $\omega = 1.744(2)$ $\varepsilon = 1.732(2)$ *Pleochroism:* Strong; *O* = dark purple, *E* = pale red to *O* = dark reddish brown, *E* = pale yellowish brown. *Absorption:* O>>E.

Cell Data: *Space Group:* P4/n. $a = 15.5173(4)$ $c = 11.8230(5)$ [Mg rich]; $a = 15.5699(2)$
 $c = 11.8042(2)$ [Mn rich] $Z = 1$

X-ray Powder Pattern: Wessels mine, North Cape Province, Republic of South Africa.
2.752 (100), 2.594 (76), 2.950 (47), 2.459 (35), 1.6224 (28), 5.89 (12), 3.007 (12)

Chemistry:	(1)	(2)
SiO ₂	36.98	36.51
Al ₂ O ₃	14.98	13.70
CaO	36.70	36.18
MgO	3.24	1.10
Mn ₂ O ₃	2.27	6.04
CuO	2.39	1.86
Fe ₂ O ₃	0.62	2.50
Cr ₂ O ₃	0.23	0.04
H ₂ O	3.30	3.30
Total	100.71	101.23

(1) Wessels mine, North Cape Province, Republic of South Africa; average electron microprobe analysis, H₂O by TGA/DSC, supplemented by FTIR and SREF; corresponds to Ca_{18.00}Ca_{1.00}(Cu_{0.95}Mg_{0.05})_{Σ=1.00}Al_{4.00}(Al_{5.50}Mg_{1.00}Mn³⁺_{1.19}Fe³⁺_{0.22}Cr_{0.09})_{Σ=8.00}[(SiO₄)_{9.91}[H₄O₄]_{0.09}]_{Σ=10.00}[Si₂O₇]₄[(OH)₉O]_{Σ=10.00}. Mg-rich zone. (2) Wessels mine, North Cape Province, Republic of South Africa; average electron microprobe analysis, H₂O by TGA/DSC, supplemented by FTIR and SREF; corresponds to Ca_{18.00}Ca_{1.00}(Cu_{0.90}Mg_{0.10})_{Σ=1.00}(Al_{3.22}Mn³⁺_{0.60}Fe³⁺_{0.18})_{Σ=4.00}(Al_{4.72}Mn³⁺_{1.20}Fe³⁺_{1.06}Mn²⁺_{0.60}Mg_{0.40}Cr_{0.02})_{Σ=8.00}[(SiO₄)_{9.91}[H₄O₄]_{0.09}]_{Σ=10.00}[Si₂O₇]₄[(OH)₉O]_{Σ=10.00}. Mn-rich zone.

Mineral Group: Vesuvianite group.

Occurrence: Of hydrothermal origin.

Association: Calcite, apatite, andradite, henritermierite, rhodochrosite.

Distribution: From the Wessels mine, near Hotazel, Kalahari Manganese Field, North Cape Province, Republic of South Africa.

Name: For a member of the vesuvianite group with predominance of Cu²⁺ at the Y1A, B sites. The historical name *cyprine* (derived from Latin *cuprum*, copper) given by J.J. Berzelius in 1821 for Cu-bearing vesuvianite is transferred to this new mineral.

Type Material: Mineralogical Museum, Department of Mineralogy, St. Petersburg State University, St. Petersburg, Russia (1/19652).

References: (1) Panikorovskii, T.L., V.V. Shilovskikh, E.Yu. Avdontseva, A.A. Zolotarev, I.V. Pekov, S.N. Britvin, U. Hålenius, and S.V. Krivovichev (2017) *Cyprine*, Ca₁₉Cu²⁺(Al,Mg,Mn)₁₂Si₁₈O₆₉(OH)₉, a new vesuvianite-group mineral from the Wessels mine, South Africa. *Eur. J. Mineral.*, 29(2), 295-306. (2) (2018) *Amer. Mineral.*, 103, 658-659 (abs. ref. 1).