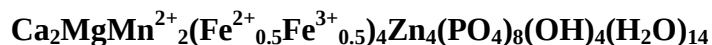


Falsterite

Crystal Data: Monoclinic. *Point Group:* 2/m. As plates and rectangular laths, to 0.7 mm, flattened on {010}, elongate along [100]. *Twinning:* Lamellar, common.

Physical Properties: *Cleavage:* Perfect on {010}. *Fracture:* Irregular. *Tenacity:* Flexible. Hardness = 2 D(meas.) = 2.78(3) D(calc.) = 2.837 Dissolves in HCl.

Optical Properties: Transparent. *Color:* Greenish blue. *Streak:* Pale greenish blue.

Luster: Vitreous.

Optical Class: Biaxial (-). $\alpha = 1.575(10)$ $\beta = 1.600(5)$ $\gamma = 1.610(5)$ $2V(\text{meas.}) = 60(10)^\circ$ $2V(\text{calc.}) = 63.8^\circ$ *Dispersion:* $r > v$, strong. *Orientation:* $X = b$, $Y \approx a$, $Z \approx c$.

Pleochroism: Pronounced; $X = Z$ = colorless to very pale yellow, Y = blue-green.

Absorption: $Y \gg X \approx Z$.

Cell Data: *Space Group:* $P2_1/c$. $a = 6.3868(18)$ $b = 21.260(7)$ $c = 15.365(5)$
 $\beta = 90.564(6)^\circ$ $Z = 2$

X-ray Powder Pattern: Palermo No. 1 pegmatite, North Groton, New Hampshire, USA.
 10.675 (100), 12.86 (34), 3.220 (25), 2.846 (19), 4.043 (18), 3.107 (14), 1.596 (14)

Chemistry:	(1)	(2)
CaO	6.36	6.30
MgO	2.13	2.27
MnO	8.10	7.97
ZnO	18.49	18.30
FeO	8.02	8.08
Fe ₂ O ₃	8.90	8.98
Al ₂ O ₃	0.02	
P ₂ O ₅	31.81	31.91
H ₂ O	16.17	16.20
Total	100.00	100.00

(1) Palermo No. 1 pegmatite, North Groton, New Hampshire, USA; average of 7 electron microprobe analyses, H₂O calculated from stoichiometry, FeO/Fe₂O₃ apportioned from structure analysis; corresponds to $\text{Ca}_{2.02}\text{Mg}_{0.94}\text{Mn}^{2+}_{2.04}\text{Fe}^{2+}_{1.99}\text{Fe}^{3+}_{1.99}\text{Zn}_{4.05}\text{P}_{7.99}\text{O}_{32}(\text{OH})_4(\text{H}_2\text{O})_{14}$.

(2) $\text{Ca}_2\text{MgMn}^{2+}_2(\text{Fe}^{2+}_{0.5}\text{Fe}^{3+}_{0.5})_4\text{Zn}_4(\text{PO}_4)_8(\text{OH})_4(\text{H}_2\text{O})_{14}$.

Occurrence: Formed as the result of secondary alteration of primary triphylite and associated sphalerite in the core-margin of a well-zoned beryl-phosphate granitic pegmatite.

Association: Messelite, mitridatite, phosphophyllite, quartz, schoonerite, siderite, smithsonite, vivianite (Palermo No 1); almandine, fairfieldite, muscovite, quartz, schoonerite, sphalerite (Estes).

Distribution: From the Palermo No. 1 pegmatite, North Groton, Grafton County, New Hampshire and the Estes pegmatite quarry, Baldwin, Cumberland County, Maine, USA.

Name: Honors Alexander U. Falster (b. 1952), a Scientific Research Technologist, Department of Earth and Environmental Science, University of New Orleans, Louisiana, USA, in recognition for his research on pegmatites and pegmatite minerals.

Type Material: Natural History Museum of Los Angeles County, Los Angeles, California, USA (63565-63568).

References: (1) Kampf, A.R., S.J. Mills, W.B. Simmons, J.W. Nizamoff, and R.W. Whitmore (2012) Falsterite, $\text{Ca}_2\text{MgMn}^{2+}_2(\text{Fe}^{2+}_{0.5}\text{Fe}^{3+}_{0.5})_4\text{Zn}_4(\text{PO}_4)_8(\text{OH})_4(\text{H}_2\text{O})_{14}$, a new secondary phosphate mineral from the Palermo No. 1 pegmatite, North Groton, New Hampshire. *Amer. Mineral.*, 97, 496-502.