Pyrosmalite-(Fe) $(Fe^{2+}, Mn^{2+})_8Si_6O_{15}(OH, Cl)_{10}$

Crystal Data: Hexagonal. *Point Group*: n.d. As subhedral to euhedral platy crystals, to 1mm; in radiating crystal aggregates.

Physical Properties: *Cleavage*: {0001}, good. Hardness = n.d. D(meas.) = n.d. D(calc.) = [3.14]

Optical Properties: Semitransparent. Color: In transmitted light, colorless.
Optical Class: Uniaxial (-). ω = 1.677(2) ε = 1.652(2)

Cell Data: Space Group: n.d. a = 13.33(3) c = 7.11(2) Z = [2]

X-ray Powder Pattern: Pegmont deposit, Australia.
2.675 (10), 7.13 (8), 3.564 (6), 2.243 (6), 1.833 (4), 1.667 (4), 1.513 (4)

Chemistry:

	(1)
SiO_2	34.17
Al_2O_3	0.00
FeO	49.54
MnO	4.36
MgO	0.64
Cl	4.00
H_2O	[8.19]
$-O = Cl_2$	0.90
Total	[100.00]

(1) Pegmont deposit, Australia; by electron microprobe, H_2O by difference; corresponds to $(Fe_{7.14}Mn_{0.64}Mg_{0.16})_{\Sigma=7.94}Si_{5.89}O_{14.42}[(OH)_{9.41}Cl_{1.17}]_{\Sigma=10.58}$.

Polymorphism & Series: Forms a series with pyrosmalite-(Mn).

Occurrence: Intergrown with sulfdes, formed during metamorphism of a stratiform Pb-Zn deposit; a retrograde reaction product derived from clinopyroxene in saline fluid inclusions in contact metamorphic rocks.

Association: Fayalite, greenalite, galena, sphalerite, clinopyroxene, hornblende, grunerite, garnet, biotite, magnetite, apatite.

Distribution: From the Pegmont lead-zinc deposit, 175 km southeast of Mt. Isa, Queensland, Australia. In Canada from the Ni-Cu-PGE deposits of Sudbury, Ontario and the PGE-Au-As deposits of the Thomson nickel belt, Manitoba. From the Banská Štiavnica district, Slovakia.

Name: For its high Fe iron content and relation to *pyrosmalite-(Mn)*; *pyrosmalite* from the Greek for *fire* and *odor*, for the odor when heated.

Type Material: n.d.

References: (1) Vaughan, J.P. (1986) The iron end-member of the pyrosmalite series from the Pegmont lead-zinc deposit, Queensland. Mineral. Mag., 50, 527-531. (2) Vaughan, J.P. (1987) Ferropyrosmalite and nomenclature in the pyrosmalite series. Mineral. Mag., 51, 174. (3) (1988) Amer. Mineral., 73, 933-934 (abs. refs. 1 and 2). (4) Koděra, P., P.J. Murphy, and A. H. Rankin (2003) Retrograde mineral reactions in saline fluid inclusions: The transformation ferropyrosmalite ↔ clinopyroxene. Amer. Mineral., 88, 151–158. (5) Burke, E.A.J. (2008) Tidying up mineral names: an IMA-CNMNC scheme for suffixes, hyphens and diacritical marks. Mineral. Record, 39, 131-135.