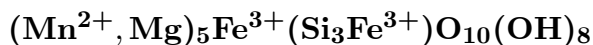


Gonyerite

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Crystal Data: Orthorhombic, pseudo-hexagonal. *Point Group:* n.d. In rounded, radial aggregates of lath- and plate-shaped crystals, to several mm; as tiny rosettes of intergrown pseudo-hexagonal plates.

Physical Properties: *Cleavage:* {001}, perfect. *Tenacity:* Cleavage foliae are flexible but inelastic. Hardness = 2.5 D(meas.) = 3.01(4) D(calc.) = 3.03

Optical Properties: Translucent. *Color:* Deep brown with reddish internal reflections, light chocolate-brown; in transmitted light, pale to dark brown.

Optical Class: Biaxial (-). *Pleochroism:* X = dark brown; Z = light brown. $\alpha = 1.646$
 $\beta = 1.664$ $\gamma = 1.664$ $2V(\text{meas.}) = 0^\circ$

Cell Data: *Space Group:* n.d. $a = 5.47$ $b = 9.46$ $c = 28.8$ $Z = [4]$

X-ray Powder Pattern: Långban, Sweden.

7.23 (10), 3.61 (8), 4.79 (5), 1.574 (5), 14.6 (3), 2.697 (3), 1.634 (3)

Chemistry:

	(1)	(2)
SiO ₂	33.06	32.35
Al ₂ O ₃	0.58	0.57
Fe ₂ O ₃	9.42	
FeO		7.30
MnO	33.83	35.50
ZnO	0.42	0.47
PbO	0.56	
MgO	11.55	10.26
CaO	0.07	0.08
F		< 0.05
Cl		0.05
H ₂ O ⁺	10.31	[9.89]
H ₂ O ⁻	0.02	
-O = (F, Cl) ₂		[0.05]
Total	99.82	[96.47]

(1) Långban, Sweden; corresponds to $(\text{Mn}_{3.25}^{2+}\text{Mg}_{1.95}\text{Fe}_{0.64}^{3+}\text{Zn}_{0.04}\text{Pb}_{0.02}\text{Ca}_{0.01})_{\Sigma=5.91}$
 $(\text{Si}_{3.75}\text{Fe}_{0.17}^{3+}\text{Al}_{0.08})_{\Sigma=4.00}[\text{O}_{10.20}(\text{OH})_{7.80}]_{\Sigma=18.00}$. (2) Do.; by electron microprobe, H₂O
calculated from stoichiometry; corresponds to $(\text{Mn}_{3.64}^{2+}\text{Mg}_{1.85}\text{Fe}_{0.74}\text{Zn}_{0.04}\text{Ca}_{0.01})_{\Sigma=6.28}$
 $(\text{Si}_{3.92}\text{Al}_{0.08})_{\Sigma=4.00}\text{O}_{10}[(\text{OH})_{7.99}\text{Cl}_{0.01}]_{\Sigma=8.00}$.

Mineral Group: Chlorite group.

Occurrence: In hydrothermal veinlets cutting skarn (Långban, Sweden).

Association: Caryopilite, bementite, berzeliite, barite, garnet (Långban, Sweden).

Distribution: From Långban, and at the Harstigen mine, near Persberg, Värmland, Sweden. In the Wessels mine, near Kuruman, Cape Province, South Africa.

Name: In honor of Forest A. Gonyer, analytical chemist in the Department of Mineralogy and Petrography, Harvard University, Cambridge, Massachusetts, USA.

Type Material: Harvard University, Cambridge, Massachusetts, 112842; National Museum of Natural History, Washington, D.C., USA, 106913; The Natural History Museum, London, England, 1956,190–191.

References: (1) Frondel, C. (1955) Two chlorites: gonyerite and melanolite. *Amer. Mineral.*, 40, 1090–1094. (2) Peacor, D.R. and E.J. Essene (1980) Caryopilite – a member of the friedelite rather than the serpentine group. *Amer. Mineral.*, 65, 335–339.

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