Osumilite-(Mg) $(K,Na)(Mg,Fe^{2+})_2(Al,Fe^{3+})_3(Si,Al)_{12}O_{30}$

Crystal Data: Hexagonal. *Point Group:* $6/m\ 2/m\ 2/m$. Crystals tabular to prismatic, elongated ‖ [0001], to 0.1 mm. Also anhedral, massive.

Physical Properties: Hardness = n.d. D(meas.) = 2.58–2.68 D(calc.) = [2.59]

Optical Properties: Semitransparent. *Color:* Colorless, pink, blue, black. *Luster:* Pearly. *Optical Class:* Uniaxial (+); anomalously biaxial. *Pleochroism:* Faint; O = colorless to pink; E = colorless to pale blue. ω = 1.540–1.547 ϵ = 1.541–1.546 2V(meas.) = 5°–15°

Cell Data: *Space Group:* $P6/mcc$. $a = 10.08$ $c = 14.35$ Z = [2]

X-ray Powder Pattern: Near Nain, Canada. (ICDD 30-942).
3.22 (100), 5.01 (60), 4.11 (60), 3.72 (60), 2.915 (60), 2.767 (60), 7.1 (40)

Chemistry:

	(1)	(2)
SiO_2	64.35	62.75
TiO_2	0.06	0.08
Al_2O_3	19.38	21.65
FeO	2.16	0.94
MnO	0.24	0.00
MgO	9.46	9.07
CaO	0.13	0.10
Na_2O	0.27	0.28
K_2O	3.98	4.60
Total	100.03	99.47

(1) Tieveragh, Ireland; by electron microprobe, corresponds to $(K_{0.84}Na_{0.09}Ca_{0.02})_{\Sigma=0.95}(Mg_{1.69}Fe^{2+}_{0.30}Mn_{0.03})_{\Sigma=2.02}(Al_{2.36}Mg_{0.63}Ti_{0.01})_{\Sigma=3.00}(Si_{10.60}Al_{1.40})_{\Sigma=12.00}O_{30}$. (2) Mt. Riiser-Larsen, Antarctica; by electron microprobe, corresponds to $(K_{0.97}Na_{0.09}Ca_{0.02})_{\Sigma=1.08}(Mg_{2.82}Fe^{2+}_{0.13}Mn_{0.03}Ti_{0.01})_{\Sigma=2.99}(Al_{2.59}Mg_{0.41})_{\Sigma=3.00}(Si_{10.37}Al_{1.63})_{\Sigma=12.00}O_{30}$.

Mineral Group: Milarite group.

Occurrence: In fused xenoliths and contact metamorphic rocks.

Association: Cordierite, sodic plagioclase, sanidine, "hypersthene," tridymite, quartz, biotite, zircon, magnetite, hematite, graphite.

Distribution: Following are a few localities for material with characterized Fe^{2+}:Mg. From Tieveragh, Co. Antrim, Ireland. At Vikeså, Rogaland, Norway. From Iriki, Kagoshima Prefecture; at Haneyama, Oita Prefecture; on the Akagi volcano, Gumma Prefecture; and from Rishiri Island, Japan. On the Malyi Nepiskol volcano, Caucasus Mountains, Russia. From Reference Peak, Mt. Riiser-Larsen, and nearby, in Enderby Land, Antarctica. In the Nain complex, at Ikkinikulluit Brook, Labrador, Newfoundland, Canada.

Name: For the relation to *osumilite* and predominance of *magnesium*.

Type Material: National Museum of Natural History, Washington, D.C., USA, 128117, 137452.

References: (1) Deer, W.A., R.A. Howie, and J. Zussman (1986) Rock-forming minerals, (2nd edition), v. 1B, disilicates and ring silicates, 541–558. (2) Chinner, G.A. and P.D. Dixon (1973) Irish osumilite. Mineral. Mag., 39, 189–192. (3) Berg, J.H. and E.P. Wheeler, II (1976) Osumilite of deep-seated origin in the contact aureole of the anorthositic Nain complex, Labrador. Amer. Mineral., 61, 29–37. (4) Armbruster, T. and R. Oberhänsli (1988) Crystal chemistry of double-ring silicates: structural, chemical, and optical variation in osumilites. Amer. Mineral., 73, 585–594.