Magnesiostaurolite $Mg(Mg, Li)_3(Al, Mg)_{18}Si_8O_{44}(OH)_4$

Crystal Data: Monoclinic. *Point Group*: 2/*m*. As anhedral inclusions, to 250 μm, in pyrope megablasts.

Physical Properties: *Cleavage*: n.d. *Tenacity*: n.d. Hardness = 7-7.5 D(meas.) = n.d. D(calc.) = 3.54

Optical Properties: Transparent. *Color*: Colorless. *Streak*: White. *Luster*: Vitreous to resinous. *Optical Class*: Biaxial. *n*(average) = 1.709(2) 2V = ~90° Some crystals show a 'tweed' texture under crossed polars.

Cell Data: *Space Group*: *C*2/*m*. *a* = 7.8706(5) *b* = 16.5411(16) *c* = 5.6323(3) β = 90.007(4)°

X-ray Powder Pattern: Calculated pattern.
1.968 (100), 1.391 (82), 2.390 (50), 2.678 (38), 2.370 (33), 4.139 (24), 2.356 (24)

Chemistry:

	(1)
SiO_2	30.66
Al_2O_3	57.45
TiO_2	0.18
FeO	0.72
MgO	7.77
ZnO	0.10
Li_2O	0.90
H_2O	[2.30]
Total	100.08

(1) Dora-Maira massif, Italian Western Alps; average of 3 electron microprobe analyses, H_2O calculated; corresponds to $(\square_{3.12}Mg_{0.72}Fe^{3+}_{0.16})_{\Sigma=4}(Mg_{1.86}\square_{1.18}Li_{0.94}Zn_{0.02})_{\Sigma=4}(Al_{15.96}Ti_{0.04})_{\Sigma=16.00}(\square_{1.97}Al_{1.58}Mg_{0.45})_{\Sigma=4}(Si_{7.96}Al_{0.04})_{\Sigma=8.00}O_{40}[O_{4.02}(OH)_{3.98}]_{\Sigma=8.00}$.

Occurrence: From an ultra-high-pressure, coesite-bearing metamorphic terrane.

Association: Talc, clinochlore, rutile, magnesiochloritoid, kyanite, corundum, pyrope.

Distribution: From the Dora-Maira massif, Italian Western Alps.

Name: The prefix, *magnesio*, indicates the magnesium analog of *staurolite*.

Type Material: School of Mines, Paris, France (56244).

References: (1) Chopin, C., B. Goffe, L. Ungaretti, and R. Oberti (2003) Magnesiostaurolite and zincostaurolite: mineral description with a petrogenetic and crystal-chemical update. Eur. J. Mineral., 15, 167-176. (2) (2003) Amer. Mineral., 88, 1626-1627 (abs. ref. 1).