

Crystal Data: Monoclinic. *Point Group:* 2/m. As grains to 400 μm.

Physical Properties: *Cleavage:* Poor, two sets nearly perpendicular. *Fracture:* Uneven. *Tenacity:* Brittle. *Hardness* = ~ 5 (by analogy to wagnerite) *D*(meas.) = n.d. *D*(calc.) = 3.074

Optical Properties: Transparent to translucent. *Color:* Creamy white. *Streak:* White. *Luster:* Vitreous.

Optical Class: Biaxial (+). $\alpha = 1.584(1)$ $\beta = 1.586(1)$ $\gamma = 1.587(1)$ $2V$ (meas.) = 43(2)°
Orientation: $Y = b$. *Dispersion:* $r > v$ (synthetic material).

Cell Data: *Space Group:* $P2_1/c$. $a = 9.646(3)$ $b = 12.7314(16)$ $c = 11.980(4)$ $\beta = 108.38(4)^\circ$
 $Z = 16$

X-ray Powder Pattern: Synthetic β -Mg₂PO₄OH.

3.011 (100), 2.870 (81), 3.124 (69), 3.304 (53), 2.758 (33), 2.731 (22), 2.506 (21)

Chemistry:	(1)	(2)	(3)
P ₂ O ₅	44.1	43.99	44.20
SiO ₂	0.28	0.02	
TiO ₂	0.20	0.16	
Al ₂ O ₃	0.06	0.03	
MgO	48.8	49.12	50.19
FeO	0.33	0.48	
MnO	0.01	0.02	
CaO	0.12	0.10	
Na ₂ O	0.01	n.d.	
F	5.6	4.67	
-O = F ₂	2.35	1.97	
H ₂ O	[2.9]	3.36	5.61
Total	100.1	99.98	100.00

(1) Dora-Maira Massif, Val Varaita, Piemonte, Italy; average of 4 electron microprobe analyses, H₂O from stoichiometry; corresponding to (Mg_{1.95}Fe_{0.01}Ti_{<0.01}Ca_{<0.01}Al_{<0.01}Na_{<0.01}) $\Sigma=1.97$ (P_{1.00}Si_{0.01}) $\Sigma=1.01$ O₄(OH_{0.53}F_{0.47}) $\Sigma=1.00$. (2) Dora-Maira Massif, Val Varaita, Piemonte, Italy; average of 4 electron microprobe analyses; corresponding to (Mg_{1.97}Fe_{0.01}Ti_{<0.01}Ca_{<0.01}Al_{<0.01}) $\Sigma=1.99$ (P_{1.00}Si_{<0.01}) $\Sigma=1.00$ O₄(OH_{0.60}F_{0.40}) $\Sigma=1.00$. (3) Mg₂PO₄(OH).

Mineral Group: Triplite-triploidite supergroup, triploidite group.

Occurrence: An accessory rock-forming mineral in quartz-rich, pyrope-kyanite-phengite schist lenses within metagranite in ultrahigh-pressure metamorphic rocks.

Association: Talc, clinocllore, kyanite, rutile, apatite, pyrope.

Distribution: From the Dora-Maira Massif, western Alps, Vallone di Gilba, Val Varaita, Piemonte, Italy.

Name: Indicates the *hydroxyl* analogue of *wagnerite*.

Type Material: Mineralogy Museum, School of Mines, Paris, France (83104, 83015) and the Institute for Geology, Mineralogy and Geophysics, Ruhr-University Bochum, Germany.

References: (1) Chopin, C., T. Armbruster, E.S. Grew, A. Baronnet, C. Leyx, and O. Medenbach (2014) The triplite-triploidite supergroup: structural modulation in wagnerite, discreditation of magniotriplite, and the new mineral hydroxylwagnerite. *Eur J. Mineral.*, 26(4), 553-565. (2) (2016) *Amer. Mineral.*, 101, 1493-1494 (abs. ref. 1). (3) Raade, G. and C. Rømming (1986) The crystal structure of β -Mg₂PO₄OH, a synthetic hydroxyl analogue of wagnerite. *Z. Kristallogr.*, 177, 15-26.