

Ephesite**NaLiAl₂(Al₂Si₂)O₁₀(OH)₂**

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Crystal Data: Triclinic, pseudomonoclinic. *Point Group:* 1. As books and flakes, to 13 mm. *Twinning:* Commonly twinned about [310] or [3 $\bar{1}$ 0].

Physical Properties: *Cleavage:* {001}, perfect. *Tenacity:* Brittle. Hardness = 3.5–4
D(meas.) = 2.984 D(calc.) = 2.965

Optical Properties: Translucent. *Color:* Pink. *Luster:* Vitreous, pearly on cleavage.
Optical Class: Biaxial (-). *Dispersion:* $r < v$. $\alpha = 1.592$ $\beta = 1.624$ $\gamma = 1.625$
2V(meas.) = 28°

Cell Data: *Space Group:* C1. $a = 5.123(2)$ $b = 8.872(3)$ $c = 19.307(3)$ $\alpha = 89.97(2)^\circ$
 $\beta = 95.15(2)^\circ$ $\gamma = 89.96(2)^\circ$ $Z = 4$

X-ray Powder Pattern: Postmasburg district, South Africa.
3.20 (100), 9.59 (65), 1.922 (25), 2.52 (20), 4.81 (16), 1.478 (16), 4.41 (10)

Chemistry:

	(1)	(2)	(3)
SiO ₂	30.70	30.86	30.97
TiO ₂		0.03	
Al ₂ O ₃	55.67	51.68	52.55
Fe ₂ O ₃		0.47	
FeO		0.03	
MnO		0.12	
MgO		0.09	
CaO	2.55	0.02	
BaO		0.17	
Li ₂ O		3.52	3.85
Na ₂ O	5.52	7.44	7.99
K ₂ O	1.10	0.15	
H ₂ O ⁺	4.91	4.92	4.64
H ₂ O ⁻		0.06	
Total	100.45	99.57	100.00

(1) Gumuch-dagh, Turkey; Li perhaps analyzed as Na and K. (2) Postmasburg district, South Africa. (3) NaLiAl₂(Al₂Si₂)O₁₀(OH)₂.

Polymorphism & Series: 2M₁, 1M polytypes.

Mineral Group: Mica group.

Occurrence: In an emery deposit (Gumuch-dagh, Turkey); a minor constituent in manganese oxide ore (Postmasburg district, South Africa).

Association: Corundum, magnetite (Gumuch-dagh, Turkey); diaspore, braunite, bixbyite (Postmasburg district, South Africa).

Distribution: Some material from the original locality at Gumuch-dagh, near Ephesus, Turkey was later determined to be a mixture, but has not been reexamined by modern methods. From Lohatla, Postmasburg district, Transvaal, and in the Wessels mine, near Kuruman, Cape Province, South Africa. In the Ilímaussaq intrusion, southern Greenland.

Name: For Ephesus, Turkey, near where it may occur.

References: (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 707. (2) Schaller, W.T., M.K. Carron, and M. Fleischer (1967) Ephesite, Na(Li, Al₂)(Al₂Si₂)O₁₀(OH)₂, a trioctahedral member of the margarite group, and related brittle micas. *Amer. Mineral.*, 52, 1689–1696. (3) Gallagher, M.J. and J.R. Hawkes (1966) Beryllium minerals from Rhodesia and Uganda. *Bull. Geol. Sur. Great Britain*, 25, 59–75. (4) Slade, P.G., P.K. Schultz, and C. Dean (1987) Refinement of the ephesite structure in C1 symmetry. *Neues Jahrb. Mineral., Monatsh.*, 275–287.

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