

**Ephesite****NaLiAl<sub>2</sub>(Al<sub>2</sub>Si<sub>2</sub>)O<sub>10</sub>(OH)<sub>2</sub>**

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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 <sub>2</sub>	30.70	30.86	30.97
TiO <sub>2</sub>		0.03	
Al <sub>2</sub> O <sub>3</sub>	55.67	51.68	52.55
Fe <sub>2</sub> O <sub>3</sub>		0.47	
FeO		0.03	
MnO		0.12	
MgO		0.09	
CaO	2.55	0.02	
BaO		0.17	
Li <sub>2</sub> O		3.52	3.85
Na <sub>2</sub> O	5.52	7.44	7.99
K <sub>2</sub> O	1.10	0.15	
H <sub>2</sub> O <sup>+</sup>	4.91	4.92	4.64
H <sub>2</sub> O <sup>-</sup>		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) NaLiAl<sub>2</sub>(Al<sub>2</sub>Si<sub>2</sub>)O<sub>10</sub>(OH)<sub>2</sub>.

**Polymorphism & Series:** 2M<sub>1</sub>, 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, Al<sub>2</sub>)(Al<sub>2</sub>Si<sub>2</sub>)O<sub>10</sub>(OH)<sub>2</sub>, 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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