Homilite $Ca_2(Fe^{2+},Mg)B_2Si_2O_{10}$

Crystal Data: Monoclinic. *Point Group:* $2/m$. Crystals commonly tabular on {001}, also with {100} prominent; pseudo-octahedral by development of {110} and {012} or $\{\bar{1}11\}$, to 5 cm. *Twinning:* On {001} and {100}; also on {034} to produce cruciform twins.

Physical Properties: *Cleavage:* Indistinct. *Fracture:* Subconchoidal. *Tenacity:* Brittle. Hardness = 5 D(meas.) = 3.34–3.38 D(calc.) = 3.451

Optical Properties: Opaque, translucent only in thin fragments. *Color:* Black to blackish brown. *Streak:* Grayish. *Luster:* Resinous to vitreous.
Optical Class: Biaxial (+). *Pleochroism:* X = bluish green; Y = deep brownish red to brownish gray; Z = smoky gray or brownish yellow. *Orientation:* $Z = b$; $Y \wedge c = -1°$. *Dispersion:* $r > v$, distinct, with strong horizontal dispersion. *Absorption:* $Y > X > Z$. $\alpha = 1.715$ $\beta = 1.725$ $\gamma = 1.738$ 2V(meas.) = 80°

Cell Data: *Space Group:* $P2_1/a$. $a = 9.786(2)$ $b = 7.621(2)$ $c = 4.776(1)$ $\beta = 90.61(2)°$ Z = 2

X-ray Powder Pattern: Store-Arø Island, Langesundsfjord, Norway. (ICDD 17-211).
3.10 (100), 2.52 (100), 2.83 (90), 2.97 (70), 2.18 (70), 2.23 (60), 1.86 (50)

Chemistry:

	(1)	(2)	(3)
SiO_2	31.87	31.58	30.01
B_2O_3	[18.08]	[21.46]	18.62
Al_2O_3	1.50		
Fe_2O_3	2.15		
FeO	16.25	17.03	19.22
MnO		0.50	
MgO	0.52		
CaO	27.28	29.43	32.15
Na_2O	1.50		
LOI	0.85		
Total	[100.00]	[100.00]	100.00

(1) Langesundsfjord, Norway; B_2O_3 by difference. (2) Do.; by electron microprobe, B_2O_3 by difference. (3) $Ca_2FeB_2Si_2O_{10}$.

Mineral Group: Gadolinite group.

Occurrence: In pegmatite.

Association: Allanite, meliphanite, titanite, zircon, aegirine, löllingite, astrophyllite, melanocerite, nordenskiöldine, wöhlerite, hiortdahlite, molybdenite.

Distribution: On Stokkø, Store-Arø, and Øvre-Arø Islands, in the Langesundsfjord, Norway.

Name: From the Greek for *to occur together*, in allusion to its association with meliphanite and "erdmannite" (allanite).

References: (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 505–507.
(2) Miyawaki, R., I. Nakai, and K. Nagashima (1985) Structure of homilite, $Ca_{2.00}(Fe_{0.90}Mn_{0.03})B_{2.00}Si_{2.00}O_{9.86}(OH)_{0.14}$. Acta Cryst., C41, 13–15.