Liberite Li_2BeSiO_4

Crystal Data: Monoclinic. *Point Group:* m. As aggregates of minute crystals, rarely showing pinacoidal faces.

Physical Properties: *Cleavage:* Perfect on {010}, distinct on {100} and {001}. *Tenacity:* Brittle. Hardness = ∼7 D(meas.) = 2.688(1) D(calc.) = [2.69]

Optical Properties: Transparent to translucent. *Color:* Pale yellow to brown; colorless in thin grains. *Luster:* Oily, vitreous on cleavages.
Optical Class: Biaxial (–). *Orientation:* $Z \wedge c = 41°$. $\alpha = 1.6220$ $\beta = 1.6332$ $\gamma = 1.6380$
2V(meas.) = 66°18′

Cell Data: *Space Group:* Pn. $a = 4.68$ $b = 4.95$ $c = 6.13$ $\beta = 90°30'$ Z = [2]

X-ray Powder Pattern: Synthetic.
3.84 (100), 3.72 (100), 2.596 (80), 2.349 (80), 2.471 (60), 2.273 (60), 3.41 (40)

Chemistry:

	(1)	(2)
SiO_2	48.39	52.26
Al_2O_3	0.26	
Fe_2O_3	0.11	
BeO	25.47	21.75
MgO	0.49	
CaO	0.29	
Li_2O	23.43	25.99
Na_2O	0.25	
K_2O	0.10	
H_2O^-	0.65	
Total	99.44	100.00

(1) "Nan Ling Ranges, south China." (2) Li_2BeSiO_4.

Occurrence: In veins cutting a lepidolite-fluorite-magnetite "ribbon rock" in tactite.

Association: Lepidolite, natrolite, eucryptite, hsianghualite, cassiterite, scheelite.

Distribution: At an undefined locality in the "Nan Ling Ranges, south China" [Hsianghua Ridge, Linwu Co., Hunan Province, China].

Name: Presumably for LIthium and BERyllium in the composition.

Type Material: Harvard University, Cambridge, Massachusetts; National Museum of Natural History, Washington, D.C., USA, 135815.

References: (1) Ch'un-Lin Chao (1964) Liberite (Li_2BeSiO_4), a new lithium-beryllium silicate mineral from the Nanling Ranges, south China. Ti Chih Hsueh Pao, 44, 334–342. (2) (1964) Chem. Abs., 61, 15841 (abs. ref. 1). (3) (1965) Amer. Mineral., 50, 519 (abs. ref. 1). (4) Han-Ching Chang (1966) Structural analysis of liberite. Ti Chih Hsueh Pao, 46, 76–86. (5) (1966) Chem. Abs., 65, 11457 (abs. ref. 4). (6) West, A. (1975) Crystal chemistry of liberite, Li_2BeSiO_4 and Li_2BeGeO_4. Bull. Soc. fr. Minéral., 98, 6–10.