Hsianghualite $Li_2Ca_3Be_3(SiO_4)_3F_2$

Crystal Data: Cubic. *Point Group:* 432. Crystals modified by the dodecahedron, to 1.5 cm; granular, massive.

Physical Properties: *Tenacity:* Brittle. Hardness = 6.5 VHN = 896 D(meas.) = 2.97–3.00 D(calc.) = 2.944

Optical Properties: Transparent to translucent. *Color:* Milk-white to colorless.
Luster: Vitreous.
Optical Class: Isotropic. $n = 1.613$

Cell Data: *Space Group:* $I4_132$. $a = 12.897(4)$ $Z = 8$

X-ray Powder Pattern: Hunan Province, China.
2.746 (100), 2.209 (100), 2.090 (90), 1.753 (70), 3.443 (60), 1.691 (52), 1.228 (45)

Chemistry:

	(1)	(2)
SiO_2	35.66	36.64
Al_2O_3	0.50	
Fe_2O_3	0.22	0.06
BeO	15.78	16.30
MgO	0.18	0.17
CaO	34.60	35.18
Li_2O	5.85	5.60
Na_2O	0.13	0.03
K_2O	0.06	0.03
F	7.81	7.27
LOI	1.28	
$-O = F_2$	3.2	3.06
Total	98.87	98.22

(1) Hunan Province, China; corresponds to $Li_{1.95}Ca_{3.07}Be_{3.13}(SiO_4)_3F_{2.00}$. (2) Do.; corresponds to $Li_{1.85}Ca_{3.08}Be_{3.20}(SiO_4)_3F_{2.06}$.

Occurrence: In phlogopite veins in a fluorine-rich metamorphosed Devonian limestone intruded by a beryllium-bearing granite.

Association: Fluorite, zinnwaldite, chrysoberyl, taaffeite, liberite.

Distribution: On Hsianghua Ridge, Linwu Co., Hunan Province, China.

Name: For the place of discovery; the word means *fragrant flower* in Chinese.

Type Material: n.d.

References: (1) Wen-Hui Huang, Shao-Hua Tu, K'ung-Hai Wang, Chun-Lin Chao, and Cheng-Chih Yu (1958) Hsiang-hua-shih [hsianghualite], a new beryllium mineral. Ti-chih-yueh-k'an, 7, 35 (in Chinese). (2) (1959) Amer. Mineral., 44, 1327–1328 (abs. ref. 1). (3) Beus, A.A. (1960) Geochemistry of beryllium and genetic types of beryllium deposits., 69–71. (4) (1961) Amer. Mineral., 46, 244 (abs. ref. 3). (5) Vlasov, K.A., Ed. (1966) Mineralogy of rare elements, v. II, 127–129.