Emeleusite $Na_4Li_2Fe_2^{3+}Si_{12}O_{30}$

Crystal Data: Orthorhombic, pseudohexagonal. *Point Group:* $2/m\ 2/m\ 2/m$. Euhedral crystals, tabular ∥ {010} and elongated along [100], to 2 mm; in pseudohexagonal twins; as equidimensional grains. *Twinning:* Interpenetration triplets with {110} as twin plane.

Physical Properties: Hardness = 5–6 D(meas.) = 2.76(7) D(calc.) = 2.81

Optical Properties: Transparent. *Color:* Colorless to creamy pinkish. *Luster:* Vitreous. *Optical Class:* Biaxial (–). *Orientation:* $X = b$; $Y = a$; $Z = c$. *Dispersion:* $r > v$, very strong. $\alpha = 1.596(1)$ $\beta = 1.597(1)$ $\gamma = 1.597(1)$ 2V(meas.) = 0°–30°

Cell Data: *Space Group: Acam.* $a = 10.072(3)$ $b = 17.337(6)$ $c = 14.004(3)$ Z = 8

X-ray Powder Pattern: Island of Igdlutalik, Greenland.
4.352 (100), 3.209 (80), 3.501 (70), 3.090 (70), 4.087 (60), 3.192 (60), 2.875 (60)

Chemistry:

	(1)
SiO_2	70.75
TiO_2	0.55
ZrO_2	0.10
Al_2O_3	1.34
Fe_2O_3	12.13
MnO	0.03
MgO	0.10
CaO	0.00
Li_2O	2.78
Na_2O	11.98
K_2O	0.00
Total	99.76

(1) Island of Igdlutalik, Greenland; by electron microprobe, Li by flame photometry; corresponds to $Na_{3.96}Li_{1.91}(Fe^{3+}_{1.56}Al_{0.27}Ti_{0.07}Mg_{0.03}Zr_{0.01})_{\Sigma=1.94}Si_{12.05}O_{30}$.

Mineral Group: Milarite group.

Occurrence: A minor constituent of a peralkalic trachyte dike, in flow-banded aegirine-albite-rich layers.

Association: Albite, aegirine, quartz, riebeckite, micas, zircon, pectolite, apatite, calcite, titanian narsarsukite, zincian nordite, thorite, opaque oxides.

Distribution: On the Island of Igdlutalik, Julianehåb district, Greenland.

Name: To honor Dr. Charles Henry Emeleus, University of Durham, Durham, England.

Type Material: University of Copenhagen, Copenhagen, Denmark; Department of Geology, Edinburgh University, Edinburgh, Scotland; The Natural History Museum, London, England, 1987,118; National Museum of Natural History, Washington, D.C., USA, 146464.

References: (1) Upton, B.G.J., P.G. Hill, O. Johnsen, and O.V. Petersen (1978) Emeleusite: a new $LiNaFe^{III}$ silicate from south Greenland. Mineral. Mag., 42, 31–34. (2) (1979) Amer. Mineral., 64, 242 (abs. ref. 1). (3) Johnsen, O., K. Nielsen, and I. Sotofte (1978) The crystal structure of emeleusite, a novel example of sechser-doppelkette. Zeits. Krist., 147, 297–306.