

# Meliphanite

# (Ca, Na)<sub>2</sub>Be(Si, Al)<sub>2</sub>(O, OH, F)<sub>7</sub>

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**Crystal Data:** Tetragonal. *Point Group:*  $\bar{4}$ . As tablets, to 3 cm; platy, lamellar, massive.

**Physical Properties:** *Cleavage:* Distinct on {001}. *Fracture:* Irregular. *Tenacity:* Brittle. Hardness = 5–5.5 D(meas.) = 3.01–3.02 D(calc.) = 3.024 Strongly piezoelectric.

**Optical Properties:** Transparent to translucent. *Color:* Honey-yellow, citron-yellow, sulfur-yellow, flesh-red, brick-red. *Luster:* Vitreous.

*Optical Class:* Uniaxial (+).  $\omega = 1.593$   $\epsilon = 1.613$

**Cell Data:** *Space Group:*  $I\bar{4}$ .  $a = 10.516(2)$   $c = 9.887(2)$   $Z = 8$

**X-ray Powder Pattern:** Stokkø Island, Langesundsfjord, Norway. (ICDD 31-304).

2.75 (100), 2.96 (50), 3.59 (40), 2.346 (40), 2.342 (40), 2.316 (40), 1.978 (40)

## Chemistry:

	(1)	(2)
SiO <sub>2</sub>	43.66	43.60
Al <sub>2</sub> O <sub>3</sub>	1.57	4.61
BeO	11.74	9.80
MgO	0.11	0.16
CaO	26.74	29.56
Na <sub>2</sub> O	8.55	7.98
K <sub>2</sub> O	1.40	0.23
F	5.73	5.43
H <sub>2</sub> O	0.30	
–O = (F, Cl) <sub>2</sub>	[2.41]	[2.29]
Total	[97.39]	[99.08]

(1) Fredriksvärn, Norway; Al<sub>2</sub>O<sub>3</sub> includes Fe<sub>2</sub>O<sub>3</sub>, Mn<sub>2</sub>O<sub>3</sub>, original total given as 99.80% before F correction. (2) Arø Island, Langesundsfjord, Norway; Al<sub>2</sub>O<sub>3</sub> includes Fe<sub>2</sub>O<sub>3</sub>, original total given as 101.37% before F correction.

**Occurrence:** In augite syenite (Fredriksvärn, Norway).

**Association:** Natrolite, mica, fluorite (Fredriksvärn, Norway).

**Distribution:** From near Fredriksvärn; on several of the islands in the Langesundsfjord; and at Tvedalen, near Larvik, Norway. In Russia, from the Sakhariok massif, Kola Peninsula, and at other less-well-defined localities. In the USA, in the Iron Mountain No. 2 mine, near Brown City, Sierra Co., New Mexico.

**Name:** From the Greek for *honey-yellow* and *to appear*, in allusion to its color.

**References:** (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 418–419.

(2) Dal Negro, A., G. Rossi, and L. Ungaretti (1967) The crystal structure of meliphanite. *Acta Cryst.*, 23, 260–264. (3) (1970) NBS Mono. 25, 8, 135.