Eudidymite $NaBeSi_3O_7(OH)$

Crystal Data: Monoclinic. *Point Group:* $2/m$. Crystals tabular on {001}, to 5 cm, commonly twinned, intergrown in fanlike aggregates. Spherulitic, micaceous, coarse and fine granular, massive. *Twinning:* On {001}, simple twins, common, may be polysynthetic.

Physical Properties: *Cleavage:* Perfect on {001}, imperfect on $\{\bar{5}51\}$. *Fracture:* Uneven to conchoidal. Hardness = 6 D(meas.) = 2.55 D(calc.) = [2.57]

Optical Properties: Transparent to translucent. *Color:* White or colorless, also grayish blue, blue, violet, yellow; colorless in thin section. *Luster:* Vitreous, pearly on cleavage. *Optical Class:* Biaxial (+). *Orientation:* $Y = b$; $Z \wedge c = -58.5°$. *Dispersion:* $r > v$, distinct. $\alpha = 1.545$ $\beta = 1.546$ $\gamma = 1.549$–1.551 2V(meas.) = 25°–30°

Cell Data: *Space Group:* $C2/c$. $a = 12.63(1)$ $b = 7.38(1)$ $c = 14.02(1)$ $\beta = 103°43(5)'$ Z = 8

X-ray Powder Pattern: Langesundsfjord, Norway.
3.163 (10), 3.398 (8), 3.074 (8), 6.35 (6), 2.999 (6), 2.848 (6), 3.687 (5)

Chemistry:

	(1)	(2)	(3)
SiO_2	72.94	73.11	73.49
Al_2O_3	0.57		
FeO	0.29		
BeO	11.20	10.12	10.20
CaO	0.44		
Na_2O	10.56	12.24	12.64
H_2O^+	0.35		
H_2O^-	4.07	3.79	3.67
Total	100.42	99.26	100.00

(1) Langesundsfjord, Norway. (2) Mt. Alluaiv, Russia. (3) $NaBeSi_3O_7(OH)$.

Polymorphism & Series: Dimorphous with epididymite.

Occurrence: A late-stage mineral in alkalic nepheline syenite pegmatites.

Association: Albite, neptunite, aegirine, elpidite, natrolite, analcime, fluorite, quartz.

Distribution: On Arø Island, in the Langesundsfjord, Norway. In the Ilímaussaq intrusion, southern Greenland. At Meldon, Okehampton, Devon, England. From Věžná, Czech Republic. On Mt. Alluaiv, Lovozero massif, and Mt. Yukspor, Khibiny massif, Kola Peninsula; in the Burpala massif, 120 km north of Lake Baikal, eastern Siberia; and other less-well-defined localities in Russia. From Seal Lake, Labrador, Newfoundland, and at Mont Saint-Hilaire, Quebec, Canada. Large crystals on Mt. Malosa, Zomba district, Malawi.

Name: From the Greek for *well* and *twinned*, in allusion to its common occurrence in twins.

References: (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 313–314. (2) Vlasov, K.A., Ed. (1966) Mineralogy of rare elements, v. II, 135-140. (3) Nickel, E.H. (1963) Eudidymite from Seal Lake, Labrador, Newfoundland. Can. Mineral., 7, 643–649. (4) Fang, J.H., P.D. Robinson, and Y. Ohya (1972) Determination of the crystal structure of eudidymite and its dimorphic relationship to epididymite. Amer. Mineral., 57, 1345–1354.