

Ussingite

Na₂AlSi₃O₈(OH)

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Crystal Data: Triclinic. *Point Group:* $\bar{1}$. Rarely as pseudocubic to tabular crystals, to 1 cm; fine-grained, compact. *Twinning:* Common on {010}.

Physical Properties: *Cleavage:* Perfect on {110} and $\{\bar{1}\bar{1}0\}$. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = 6–7 D(meas.) = 2.457–2.49 D(calc.) = 2.51

Optical Properties: Transparent to translucent. *Color:* Pale pink, lilac-blue, or dark violet-red, may be tarnished on the surface; colorless in thin section. *Streak:* White.

Luster: Slightly greasy to vitreous; slightly pearly on cleavage planes.

Optical Class: Biaxial (+). $\alpha = 1.503\text{--}1.504$ $\beta = 1.506\text{--}1.508$ $\gamma = 1.543\text{--}1.545$

$2V(\text{meas.}) = 32^\circ\text{--}39^\circ$

Cell Data: *Space Group:* $P\bar{1}$. $a = 7.256(3)$ $b = 7.686(3)$ $c = 8.683(3)$ $\alpha = 90^\circ 45(2)'$ $\beta = 99^\circ 45(2)'$ $\gamma = 122^\circ 29(2)'$ $Z = 2$

X-ray Powder Pattern: Locality unknown. (ICDD 14-426).
2.95 (100), 2.69 (100), 6.35 (90), 6.68 (70), 4.92 (70), 4.18 (70), 3.84 (70)

Chemistry:	(1)	(2)	(3)
SiO ₂	58.74	59.22	59.64
Al ₂ O ₃	17.73	17.22	16.87
CaO		0.30	
Na ₂ O	19.91	19.08	20.51
K ₂ O		0.86	
Cl		0.04	
H ₂ O ⁺	4.19	3.40	
H ₂ O ⁻		0.30	
H ₂ O			2.98
S		0.08	
-O = (Cl ₂ , S ₂)		0.06	
Total	100.57	100.44	100.00

(1) Ilímaussaq intrusion, Greenland. (2) Lovozero massif, Russia; average of two analyses; corresponds to (Na_{1.81}K_{0.05}Ca_{0.02})_{Σ=1.88}Al_{1.00}Si_{2.90}O₈(OH)_{1.11}. (3) Na₂AlSi₃O₈(OH).

Occurrence: A secondary mineral in pegmatites associated with sodalite syenite (Ilímaussaq intrusion, Greenland); in sodalite xenoliths in an intrusive alkalic gabbro-syenite complex (Mont Saint-Hilaire, Canada).

Association: Microcline, natrolite, aegirine (Ilímaussaq intrusion, Greenland); natrolite, aegirine, microcline, albite, sodalite (Lovozero massif, Russia); villiaumite, lovozerite, eudialyte, lueshite, griceite, natrophosphate (Mont Saint-Hilaire, Canada).

Distribution: In southern Greenland, on the Kangerdluarssuk Plateau, in the Ilímaussaq intrusion. From a number of places in both the Lovozero and Khibiny massifs, Kola Peninsula, Russia. At Mont Saint-Hilaire, Quebec, Canada.

Name: For Professor Niels Vigo Ussing (1864–1911), of Copenhagen, Denmark.

Type Material: University of Copenhagen, Copenhagen, Denmark, 1970.527.

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