

Nacareniobsite-(Ce)**Na₃Ca₃(Ce, La)(Nb, Ti)(Si₂O₇)₂OF₃**

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Crystal Data: Monoclinic. *Point Group:* 2/m. As lath-shaped crystals elongated || [001], with prominent {100}, {410}, and {310}, to 3 mm; in subparallel crystal aggregates.

Physical Properties: *Cleavage:* {011}, good. *Fracture:* Uneven. Hardness = 5
D(meas.) = 3.45 D(calc.) = 3.43

Optical Properties: Transparent. *Color:* Colorless. *Luster:* Vitreous.
Optical Class: Biaxial (+). *Orientation:* X = b; Y ≈ c; Z ∧ a = 11°. α = 1.662 β = 1.671
γ = [1.692] 2V(meas.) = 66(1)°

Cell Data: *Space Group:* P2₁/a. a = 18.901(5) b = 5.683(3) c = 7.462(2)
β = 101.29(4)° Z = 2

X-ray Powder Pattern: Ilímaussaq intrusion, Greenland.
3.077 (10), 3.089 (5), 2.955 (5), 2.031 (5), 1.5518 (5), 1.8652 (4), 1.6879 (4)

Chemistry:	(1)	(2)		(1)	(2)
SiO ₂	29.63	29.18	Sm ₂ O ₃	0.81	
TiO ₂	2.79	2.55	Dy ₂ O ₃	0.05	
ZrO ₂	< 0.10		Nb ₂ O ₅	11.61	11.75
Al ₂ O ₃	< 0.05		Ta ₂ O ₅	0.34	
Y ₂ O ₃	0.78	0.68	CaO	19.92	20.22
La ₂ O ₃	4.09	4.79	SrO	0.27	
Ce ₂ O ₃	10.32	10.35	Na ₂ O	10.01	10.75
Pr ₂ O ₃	1.42	1.10	F	6.87	n.d.
Nd ₂ O ₃	4.19	3.70	-O = (F) ₂	2.89	
			Total	100.21	95.07

(1) Ilímaussaq intrusion, Greenland; by electron microprobe, average of 10 analyses; corresponds to (Nb_{0.71}Ti_{0.28}Ta_{0.01})_{Σ=1.00}Na_{2.62}(Ca_{2.88}RE_{1.08}Sr_{0.02})_{Σ=3.98}Si_{4.00}O₁₄(F_{2.93}O_{0.70})_{Σ=3.63}. (2) Do.

Occurrence: In the groundmass and as a secondary mineral in dissolution cavities within arfvedsonite-nepheline syenite.

Association: Arfvedsonite, sodalite, eudialyte, villiaumite, microcline, albite.

Distribution: Found in the Kvanefjeld tunnel and at another unspecified locality in the Ilímaussaq intrusion, southern Greenland.

Name: For sodium, NAtrium, CAcium, Rare Earths, NIOBium, and Silicon in its chemical composition.

Type Material: University of Copenhagen, Copenhagen, Denmark; National Museum of Natural History, Washington, D.C., USA, 160684.

References: (1) Petersen, O.V., J.G. Rønsbo, and E.S. Leonardsen (1989) Nacareniobsite-(Ce), a new mineral species from the Ilímaussaq alkaline complex, South Greenland, and its relation to mosandrite and the rinkite series. Neues Jahrb. Mineral., Monatsh., 84-96. (2) (1990) Amer. Mineral., 75, 708 (abs. ref. 1).