

Crystal Data: Hexagonal. *Point Group:* $\bar{3}$. As tabular hexagonal crystals to 1.3 mm, displaying {001} and {hk0} striated along [001]; also epitactically overgrow on prismatic crystals of Sr-bearing fluorapatite. *Twinning:* Microtwinning on {001} observed under the microscope in polarized light.

Physical Properties: *Cleavage:* None. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = 5
D(meas.) = n.d. D(calc.) = 3.91

Optical Properties: Transparent. *Color:* Almost colorless with a greenish hue in daylight, pink in yellow electric light; colorless in transmitted light. *Streak:* White. *Luster:* Vitreous.
Optical Class: Uniaxial (-). $\omega = 1.655(3)$ $\varepsilon = 1.632(2)$ [can be anomalously biaxial]
 $\alpha = 1.632(2)$ $\beta = 1.654(3)$ $\gamma = 1.656(3)$ $2V(\text{meas.}) = 15(5)^\circ$ $2V(\text{calc.}) = 33^\circ$

Cell Data: *Space Group:* $P\bar{3}$. $a = 9.4553(1)$ $c = 6.9825(1)$ $Z = 2$

X-ray Powder Pattern: Kuannersuit Plateau, Ilímaussaq alkaline complex, South Greenland. 2.815 (100), 2.727 (42), 3.923 (27), 3.463 (23), 7.02 (22), 3.095 (19), 5.33 (18)

Chemistry:	(1)		(1)
Na ₂ O	5.68	Sm ₂ O ₃	2.89
CaO	18.53	Gd ₂ O ₃	0.52
SrO	7.55	SiO ₂	0.56
BaO	0.14	P ₂ O ₅	32.72
La ₂ O ₃	1.32	F	2.80
Ce ₂ O ₃	10.60	Cl	0.06
Pr ₂ O ₃	2.62	<u>-O=(F,Cl)₂</u>	<u>1.19</u>
Nd ₂ O ₃	15.08	Total	99.88

(1) Ilímaussaq alkaline complex, South Greenland; average of 10 electron microprobe analyses; corresponding to Na_{1.17}Ca_{2.11}Sr_{0.46}Ba_{0.01}La_{0.05}Ce_{0.41}Pr_{0.10}Nd_{0.57}Sm_{0.11}Gd_{0.02}Si_{0.06}P_{2.94}O_{12.05}F_{0.94}Cl_{0.01}.

Mineral Group: Apatite group, belovite subgroup.

Occurrence: In small cavities in veins of saccharoidal albite cross-cutting augite syenite.

Association: Analcime, fluorapatite, albite.

Distribution: From the Kuannersuit (Kvanefjeld) Plateau, Ilímaussaq alkaline complex, South Greenland.

Name: Honors Carl Ludwig Giesecke (1761-1833) for pioneering research in the mineralogy of Greenland; the suffix (-Nd) reflects the dominance of Nd over other REE in the composition.

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (# 3996/1).

References: (1) Pekov, I.V., N.V. Zubkova, T.A. Husdal, N.N. Kononkova, A.A. Agakhanov, A.E. Zadov, and D.Yu. Puscharovsky (2012) Carlgieseckeite-(Nd), NaNdCa₃(PO₄)₃F, a new belovite-group mineral species from the Ilímaussaq alkaline complex, South Greenland. *Can. Mineral.*, 50(2), 571-580. (2) (2014) *Amer. Mineral.*, 99, 2152 (abs. ref. 1).