Dyrnaesite-(La) $Na_8Ce^{4+}REE_2(PO_4)_6$

Crystal Data: Orthorhombic. *Point Group*: 2/*m* 2/*m* 2/*m*. As irregular grains to 0.7 mm. *Twinning*: On {210} and {230}.

Physical Properties: *Cleavage*: None. *Tenacity*: Brittle. *Fracture*: Irregular. Hardness = n.d. D(meas.) = 3.68(2) D(calc.) = 3.682

Optical Properties: Transparent. *Color*: Pale yellowish green. *Streak*: White. *Luster*: Vitreous. *Optical Class*: Biaxial (-). α =1.6226(5) β = 1.6852(10) γ = 1.6982(2) 2V(meas.) = 47(1)° 2V(calc.) = 48° *Pleochroism*: Pale yellowish green. *Orientation*: *X* = *c*, *Y* = *a*, *Z* = *b*. *Absorption*: *X* > *Z* or *Y*.

Cell Data: Space Group: *Pnma*. *a* = 18.4662(7) *b* = 16.0106(5) *c* = 7.0274(2) Z = 4

X-ray Powder Pattern: Ilímaussaq alkaline complex, South Greenland.
6.57 (100), 2.80 (86), 2.67 (54), 4.62 (40), 3.50 (40), 3.86 (38), 4.14 (28)

Chemistry:	(1)
P_2O_5	37.17
SiO_2	0.15
CaO	0.90
Na_2O	20.06
La_2O_3	16.44
CeO_2	[20.23]
Pr_2O_3	1.40
Nd_2O_3	3.47
Sm_2O_3	0.24
Dy_2O_3	0.06
Y_2O_3	0.06
Total	100.18

(1) Ilímaussaq alkaline complex, South Greenland; average of 63 electron microprobe analyses, Ce^{4+} for charge balance; corresponds to $Na_{7.44}Ca_{0.19}Ce_{1.35}La_{1.16}Nd_{0.24}Pr_{0.10}Sm_{0.02}Y_{0.01}(P_{6.02}Si_{0.03})O_{24}$.

Occurrence: An accessory constituent (late magmatic) of hyperagpaitic arfvedsonite lujavrite in an alkaline igneous complex.

Association: Arfvedsonite, albite, microcline, nepheline, sodalite, aegirine, analcime.

Distribution: From the Ilímaussaq alkaline complex, South Greenland.

Name: For the base camp area, Dyrnæs (animal headland), north of Narsaq, Kujalleq Kommune, South Greenland, with the suffix for the dominant *REE*.

Type Material: Natural History Museum, University of Copenhagen, Denmark (2014.53).

References: (1) Rønsbo, J.G., T. Balić-Žunić, and O.V. Petersen (2017) Dyrnaesite-(La) a new hyperagpaitic mineral from the Ilímaussaq alkaline complex, South Greenland. Mineral. Mag., 81(1), 103-111. (2) Balić-Žunić, T. (2017) The crystal structure of the new mineral dyrnaesite-(La), $Na_8Ce^{IV}REE_2(PO_4)_6$. Mineral. Mag., 81(1), 199-208. (3) (2017) Amer. Mineral., 102, 1144 (abs. refs. 1 & 2).