Bario-olgite $Na(Na, Sr, Ce)_2Ba(PO_4)_2$

Crystal Data: Hexagonal. *Point Group*: 3. As irregular, equant or flattened crystals, sometimes with a hexagonal outline, to 1.5 cm. Dominant forms are trigonal prisms and trigonal pyramids. Resembles quartz.

Physical Properties: *Cleavage*: Imperfect on (00l) and (hk0). *Fracture*: Uneven. *Tenacity*: Brittle. Hardness = 4.5-5 D(meas.) = 3.986 D(calc.) = 4.000 Fluoresces bright pink-orange in SW UV and weak pink-red in LW UV.

Optical Properties: Transparent. *Color*: Light green, colorless in thin section. *Streak*: White. *Luster*: Vitreous.
Optical Class: Uniaxial (-). ε = 1.623(3) ω = 1.628(2) *Pleochroism*: None.

Cell Data: *Space Group*: *P*3. a = 5.541(2) c = 7.020(3) Z = 1

X-ray Powder Pattern: Palitra (Palette) pegmatite, Kola Peninsula, Russia.
2.839 (100), 2.774 (100), 3.964 (60), 1.984 (40), 1.611 (26), 7.044 (22), 2.344 (20)

Chemistry:	(1)
Na_2O	14.78
K_2O	0.87
CaO	0.32
SrO	16.57
BaO	31.17
MnO	0.39
La_2O_3	2.41
Ce_2O_3	1.90
Pr_2O_3	0.10
Nd_2O_3	0.16
SiO_2	0.08
P_2O_5	31.77
Total	100.52

(1) Palitra (Palette) pegmatite, Kola Peninsula, Russia; electron microprobe analysis, corresponding to $Na(Na_{1.14}K_{0.08}Ca_{0.03}Mn_{0.02}Sr_{0.72}La_{0.07}Ce_{0.05})_{\Sigma=2.11}Ba_{0.91}P_{2.01}O_8$.

Polymorphism & Series: Forms a series with olgite.

Occurrence: A late-stage crystallization product of a dry melt supersaturated in Na and F at temperatures of 300-350° C.

Association: Intermixed with manaksite, natrosilite, villiaumite; also aegirine, analcime, chkalovite, natrolite, serandite, sodalite, ussingite, vuonnemite.

Distribution: At the Palitra (Palette) pegmatite, Mt. Kedykverpakhk, Lovozero alkaline massif, Kola Peninsula, Russia.

Name: *Bario* for the dominant presence of barium in the composition and the relation to *olgite*.

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Science, Moscow, Russia; 2908/1.

References: (1) Pekov, I.V., N.V., Chukanov, I.M., Kulikova, N.V.,Zubkova, O.D., Krotova, N.I., Sorokina, and D.S. Pushcharovsky (2004) A new mineral, bario-olgite $Ba(Na,Sr,REE)_2Na[PO_4]_2$, and its crystal structure. Zapiski Vseross. Mineral. Obshch. 133(1), 41-49 (in Russian, English abstract). (2) (2005) Amer. Mineral., 90, 768-769 (abs. ref. 1).