Rhabdophane-(La) $(La, Ce)PO_4 \cdot H_2O$

Crystal Data: Hexagonal. *Point Group:* $6/m\ 2/m\ 2/m$. Radiating and fanlike aggregates of fine fibrous crystals, to 0.05 mm; may be in druses.

Physical Properties: *Fracture:* Subconchoidal. Hardness = 3–3.5 D(meas.) = 4.4 D(calc.) = 4.3

Optical Properties: Semitransparent. *Color:* Pale pink, yellowish to dark brown.
Luster: Greasy to silky.
Optical Class: Uniaxial (+). $\omega = 1.692$ $\epsilon = 1.732$

Cell Data: *Space Group:* $[P6_222]$ [by analogy to rhabdophane-(Ce)]. $a = 7.03(1)$ $c = 6.41(1)$ Z = 3

X-ray Powder Pattern: Kazakhstan (?).
1.86 (7), 3.03(6), 2.85 (4), 2.157 (4b), 2.133 (4b), 1.76 (2), 1.68 (2)

Chemistry:

	(1)
SO_3	0.34
P_2O_5	25.17
SiO_2	5.3
ThO_2	0.67
Al_2O_3	2.06
RE_2O_3	58.11
Fe_2O_3	0.43
PbO	0.15
MgO	0.04
CaO	0.56
BaO	0.16
H_2O	6.88
Total	99.87

(1) Kazakhstan (?); RE by XRF; Y = 0.5%, La = 49%, Ce = 8.4%, Pr = 14.6%, Nd = 3.3%, Sm = 12.5%, Eu = 1.3%, Gd = 4.2%, Tb = 0.4%, Dy = 2.2%, Ho = 0.2%, Er = 1.3%, Tm = 0.2Yb = 1.7

Occurrence: A secondary mineral in faults cutting weathered sediments, probably derived from a porphyritic granite.

Association: Clay minerals, "opal".

Distribution: From an undisclosed locality, probably in Kazakhstan. On Mt. Karnasurt, Lovozero massif, Kola Peninsula, Russia. At the Silberbrünnle mine, near Gengenbach, Black Forest, Germany. From Gakara, Burundi.

Name: For its dominant rare earth, *lanthanum*, and relation to *rhabdophane*-(Ce).

Type Material: n.d.

References: (1) Dumler, F.L., K.P. Skornyakova, and G.G. Shul'ga (1969) Lanthanum rhabdophane in the weathered mantle on limestones – a new type of rare earth mineralization. Zap. Vses. Mineral. Obshch., 98, 593–600 (in Russian).