Lithosite $K_6Al_4Si_8O_{25}\cdot 2H_2O$

Crystal Data: Monoclinic, pseudo-orthorhombic. *Point Group:* n.d. As irregular, typically rounded grains, to 3 mm; as granular aggregates.

Physical Properties: *Fracture:* Conchoidal. Hardness = 5.5 VHN = 412–824, 559 average (50–70 g load). D(meas.) = 2.51(1) D(calc.) = 2.54 Turns bright pink on irradiation with X-rays, which persists for at least 8 months.

Optical Properties: Transparent. *Color:* Colorless. *Luster:* Vitreous.
Optical Class: Biaxial (+). *Pleochroism:* $X = Y$ = colorless; Z = bright rose. *Orientation:* $Z = b$; $Y \simeq a$; $X \simeq c$. $\alpha = 1.510(2)$ $\beta = 1.513(2)$ $\gamma = 1.527(2)$ 2V(meas.) = 47°

Cell Data: *Space Group:* n.d. $a = 15.197$ $b = 10.233$ $c = 8.435$ $\beta = 90.21°$ Z = 2

X-ray Powder Pattern: Khibiny massif, Russia.
3.07 (100), 3.46 (84), 3.26 (84), 3.16 (84), 2.10 (83), 2.82 (73), 2.05 (50)

Chemistry:

	(1)	(2)
SiO_2	50.0	49.6
Al_2O_3	20.7	20.4
K_2O	28.4	28.0
LOI	2.34	2.34
Total	101.44	100.34

(1–2) Khibiny massif, Russia; by electron microprobe, loss on ignition taken as H_2O; average corresponds to $K_{5.84}Al_{3.94}Si_{8.08}O_{25}\cdot 2.53H_2O$.

Occurrence: A secondary mineral from the weathering of ultraperalkalic pegmatite veins cutting nepheline syenites in a differentiated alkalic massif.

Association: Shafranovskite, lomonosovite, lamprophyllite, catapleiite, koashvite, zirsinalite, sodalite, aegirine, pectolite, molybdenite.

Distribution: In the Vuonnemiok River region, Khibiny massif, Kola Peninsula, Russia.

Name: From the Greek *lithos*, for *stone*, as the mineral is composed of the most abundant chemical elements of the crust of the earth.

Type Material: Geology Museum, Kola Branch, Academy of Sciences, Apatity; Mineralogical Museum, St. Petersburg University, St. Petersburg, 17073; Mining Institute, St. Petersburg, 1633/1; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 82751; The Natural History Museum, London, England, 1994,14.

References: (1) Khomyakov, A.P., N.M. Chernitsova, and N.I. Chistyakova (1983) Lithosite $K_6Al_4Si_8O_{25}\cdot 2H_2O$ – a new mineral. Zap. Vses. Mineral. Obshch., 112, 218–222 (in Russian). (2) (1984) Amer. Mineral., 69, 210 (abs. ref. 1).