

# Lisitsynite



ORTHORHOMBIC

**Locality:** Koashva quarry, Khibina alkaline complex, Kola Peninsula, Russia.

**Occurrence:** In an intensely mineralized pipe-like pegmatite body intruded into ijolite–urtite along its contact with an apatite–nepheline rock. Associated minerals are: K-feldspar, sodalite, cancrinite, pectolite, aegirine, natrite, villiaumite, lomonosovite, chkalovite, nacaphite, fluorcaphite, vitusite, sphalerite and galena.

**General appearance:** Irregularly shaped grains and subhedral tabular crystals (0.2 to 0.5 mm across).

**Physical, chemical and crystallographic properties:** *Luster:* vitreous. *Diaphaneity:* transparent. *Color:* colorless. *Streak:* white. *Luminescence:* fluoresces bright pink under short-wave ultraviolet light. *Hardness:* 5 to 6. *Tenacity:* brittle. *Cleavage:* {010} good. *Fracture:* subconchoidal. *Density:* 2.74 g/cm<sup>3</sup> (meas.), 2.75 g/cm<sup>3</sup> (calc.). **Crystallography:** Orthorhombic,  $P2_12_12_1$ ,  $a$  9.9630,  $b$  10.4348,  $c$  4.7044 Å,  $V$  489.08 Å<sup>3</sup>,  $Z = 4$ ,  $a:b:c = 0.9548:1:0.4508$ . Morphology: {010} and {110}. Twinning: none mentioned. **X-ray powder-diffraction data:** 3.944 (5) (111), 3.495 (8) (021), 3.282 (10) (121, 130), 3.149 (4) (310), 2.704 (4) (301, 131), 2.293 (4) (012, 102). **Optical data:** Biaxial (–),  $\alpha$  1.561,  $\beta$  1.563,  $\gamma$  1.564,  $2V(\text{meas.})$  51°,  $2V(\text{calc.})$  70°; dispersion  $r > v$ , strong; nonpleochroic; orientation  $X = a$ ,  $Y = b$ ,  $Z = c$ . **Chemical analytical data:** Mean of five sets of electron-microprobe data: Na<sub>2</sub>O 0.00, K<sub>2</sub>O 23.50, B<sub>2</sub>O<sub>3</sub> 17.17, SiO<sub>2</sub> 58.94, Total 99.61 wt.%. Empirical formula: K<sub>1.01</sub>B<sub>1.00</sub>Si<sub>1.99</sub>O<sub>6.00</sub>. **Relationship to other species:** A member of the *Zeolite* group.

**Name:** After Apollon E. Lisitsyn (1928–1999), well-known Russian specialist in the mineral resources, geology and mineralogy of boron deposits.

**Comments:** IMA No. 2000–008. Note that the structure has been solved.

KHOMYAKOV, A.P., NECHELYUSTOV, G.N., SOKOLOVA, E.V. & HAWTHORNE, F.C. (2000): New borosilicates: malinkoite, NaBSiO<sub>4</sub>, and lisitsynite, KBSi<sub>2</sub>O<sub>6</sub>, from alkaline pegmatites of the Khibiny–Lovozero complex, Kola Peninsula. *Zapiski Vserossiiskogo Mineralogicheskogo Obshchestva* 129(6) 35-42 (in Russ.).

SOKOLOVA, E.V., UVAROVA, YU.A., HAWTHORNE, F.C. & KHOMYAKOV, A.P. (2000): Crystal chemistry of a novel zeolite mineral from the Khibiny alkaline massif, Kola Peninsula. In *Applied Mineralogy* (D. Rammlmair, J. Mederer, T. Oberthür & H. Pentinghaus, eds.). Balkema, Rotterdam, The Netherlands (245-248).

SOKOLOVA, E.V., HAWTHORNE, F.C. & KHOMYAKOV, A.P. (2001): The crystal chemistry of malinkoite, NaBSiO<sub>4</sub>, and lisitsynite, KBSi<sub>2</sub>O<sub>6</sub>, from the Khibina–Lovozero complex, Kola Peninsula, Russia. *Can. Mineral.* 39, 159-169.