Darapiosite $KNa_2Mn_2(Li_2ZnSi_{12})O_{30}$

Crystal Data: Hexagonal. *Point Group*: 6/*m* 2/*m* 2/*m*. As masses, to 5 cm.

Physical Properties: Hardness = 5 D(meas.) = 2.92(3) D(calc.) = 2.80

Optical Properties: Semitransparent. *Color*: Colorless, white, rarely brownish or pale to deep blue. *Optical Class*: Uniaxial (-). ω = 1.580(2) ε = 1.575(2) *Pleochroism*: *O* = violet; *E* = blue.

Cell Data: *Space Group*: *P*6/*mcc*. *a* = 10.262(2) *c* = 14.307(1) Z = 2

X-ray Powder Pattern: Dara-i-Pioz massif, Tajikistan.
3.26 (100), 2.93 (65), 7.09 (60), 2.56 (55), 4.13 (50), 2.76 (45), 4.43 (40)

Chemistry:

	(1)	(2)
SiO_2	63.65	63.19
ZrO_2	5.00	3.28
Y_2O_3	0.96	2.26
Fe_2O_3	1.85	
FeO		1.96
Nb_2O_5	0.90	
MgO		0.12
MnO	8.25	9.58
ZnO	7.85	8.22
CaO	0.57	
Li_2O	1.74	2.01
Na_2O	2.96	3.32
K_2O	5.14	5.63
LOI	0.58	.
Total	99.45	99.57

(1) Dara-i-Pioz massif, Tajikistan. (2) Do.; electron microprobe analysis, Li_2O by flame photometry; corresponds to $(Mn_{1.54}Zr_{0.30}Y_{0.23}Mg_{0.03})_{\Sigma=2.10}(Na_{1.22}K_{0.36}\square_{0.42})_{\Sigma=2.00}K_{1.00}(Li_{1.53}Zn_{1.15}Fe^{2+}_{0.31})_{\Sigma=2.99}(Si_{11.98}O_{30.00})$.

Mineral Group: Milarite group.

Occurrence: In glacial moraine derived from an alkalic massif.

Association: Aegirine, quartz, sogdianite, eudialyte, manganoan pectolite, polylithionite.

Distribution: In the Dara-i-Pioz massif, Alai Range, Tien Shan, Tajikistan.

Name: For the occurrence in the Dara-i-Pioz massif, Tajikistan.

Type Material: Mineralogical Museum, St. Petersburg University, St. Petersburg; Institute of Mineralogy and Geochemistry of Rare Elements, Moscow; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 76078.

References: (1) Semenov, E.I., V.D. Dusmatov, A.P. Khomyakov, A.A. Voronkov, and M.E. Kazakova (1975) Darapiosite, a new mineral of the milarite group. Zap. Vses. Mineral. Obshch., 104, 583-585 (in Russian). (2) (1976) Amer. Mineral., 61, 1053-1054 (abs. ref. 1). (3) Ferraris G., M. Prencipe, L.A. Puatov, and E.V. Sokolova (1999) The crystal structure of darapiosite and a comparison with Li- and Zn-bearing minerals of the milarite group. Can. Mineral., 37, 769-774. (4) Hawthorne, F.C. (2002) The use of end-member charge-arrangements in defining new mineral species and heterovalent substitutions in complex minerals. Can. Mineral., 40, 699-710.