Kumdykolite $NaAlSi_3O_8$

Crystal Data: Orthorhombic. *Point Group*: 2/*m* 2/*m* 2/*m*. As roughly acicular crystals to 20 μm.

Physical Properties: *Cleavage*: n.d. F*racture*: n.d. *Tenacity*: n.d.
D(meas.) = n.d. D(calc.) = n.d. *Hardness* = n.d.

Optical Properties: Translucent. *Color*: n.d. *Streak*: n.d. *Luster*: n.d.
Optical Class: n.d.

Cell Data: *Space Group*: *P*2*nn* or *Pmnn* [most likely]. $a = 8.24(1)$ $b = 8.68(1)$ $c = 4.84(1)$ $Z = 2$

X-ray Powder Pattern: Kokchetav massif, Kazakhstan. [by selective area electron diffraction]
5.97 (n.d.), 4.33 (n.d.), 4.21 (n.d.), 4.18 (n.d.), 4.12 (n.d.), 3.76 (n.d.), 3.23 (n.d.)

Chemistry:

	(1)	(2)	(3)
SiO_2	69.18	69.23	67.32
Al_2O_3	18.64	19.02	21.26
CaO	0.09	0.49	2.02
FeO			0.70
K_2O			0.04
Na_2O	12.09	11.26	9.85
Total	100.00	100.00	101.19

(1) Kokchetav massif, Kazakhstan; semi-quantitative chemical analysis; corresponds to $Na_{1.02}Ca_{0.00}Al_{0.96}Si_{3.02}O_8$. (2) Kokchetav massif, Kazakhstan; semi-quantitative chemical analysis; corresponds to $Na_{0.95}Ca_{0.02}Al_{0.98}Si_{3.02}O_8$. (3) Northern Bohemian Massif, Czech Republic; electron microprobe analysis, corresponds to $Na_{0.835}Ca_{0.095}K_{0.002}Fe_{0.026}Al_{1.096}Si_{2.946}O_8$.

Polymorphism & Series: Polymorphous with albite, may form a series with svyatoslavite.

Mineral Group: Feldspar group.

Occurrence: As inclusions in omphacite in eclogite (Kazakhstan). Presumed to form under high temperatures with rapid cooling and in the absence of water. As inclusions in garnet in a diamond-bearing, felsic garnet-kyanite-feldspar-quartz granulite (Bohemian massif). Also known from an enstatite chondrite meteorite in the core of a concentrically zoned, metal-sulfide nodule.

Association: Diopside, quartz/cristobalite, phengite/phlogopite, calcic amphibole, dolomite, calcite, talc, omphacite (Kazakhstan); phlogopite, quartz (Bohemian massif); oldhamite, niningerite, Zn-daubreelite, S-rich porous silica (meteorite).

Distribution: From the southern shore of the Kumdy Kol, Kokchetav ultrahigh-pressure massif in northern Kazakhstan; from the T7 borehole, at the village of Staré, České středohoří Mountains, the northern Bohemian Massif, Czech Republic.

Name: For *Kumdy Kol*, the source of the first specimens.

Type Material: National Museum of Natural Science, Taichung, Taiwan.

References: (1) Hwang, S.-L., P. Shen, H.-T. Chu, T.-F. Yui, J.G. Liou, and N.V. Sobolev (2009) Kumdykolite, an orthorhombic polymorph of albite, from the Kokchetav ultrahigh-pressure massif, Kazakhstan. Eur. J. Mineral., 21, 1325-1334. (2) (2011) Amer. Mineral., 96, 942-943 (abs. ref. 1). (3) Németh, P., S.W. Lehner, M.I. Petaev, and P.R. Buseck (2013) Kumdykolite, a high-temperature feldspar from an enstatite chondrite. Amer. Mineral., 98, 1070-1073. (4) Kotková, J., R. Škoda, and V. Machovič (2014) Kumdykolite from the ultrahigh-pressure granulite of the Bohemian Massif. Amer. Mineral., 99, 1798-1801.