Akdalaite $4Al_2O_3 \cdot H_2O$

Crystal Data: Hexagonal. *Point Group:* 622 or 6. As hexagonal crystals, to 0.8 mm, tabular to equant; in lenslike aggregates.

Physical Properties: *Fracture:* Irregular. *Tenacity:* Brittle. Hardness = 7–7.5 VHN = 1085 D(meas.) = 3.68(2) D(calc.) = 3.673

Optical Properties: Translucent. *Color:* White; in thin section, pale greenish yellow. *Luster:* Vitreous to porcelaneous.
Optical Class: Uniaxial (–). $\omega = 1.747(3)$ $\epsilon = 1.741(3)$

Cell Data: *Space Group:* $P6_122$ or $P6_1$. $a = 12.87(1)$ $c = 14.97(1)$ Z = 18

X-ray Powder Pattern: Solnech deposit, Kazakhstan.
2.11 (10), 1.418 (10), 1.393 (10), 2.494 (9), 2.35 (9), 0.9931 (9), 2.32 (8)

Chemistry:

	(1)	(2)
SiO_2	4.74	
Al_2O_3	87.26	95.77
Fe_2O_3	0.97	
ZnO	0.90	
BeO	0.81	
MgO	0.97	
CaO	0.41	
F	0.68	
H_2O^+	4.23	4.23
$-O = (F, Cl)_2$	0.28	
Total	100.69	100.00

(1) Solnech deposit, Kazakhstan; after deduction of muscovite and fluorite, corresponds to $(Al_{1.91}Be_{0.04}Mg_{0.03}Fe^{3+}_{0.01}Zn_{0.01})_{\Sigma=2.00}(O_{2.91}H_{0.07}F_{0.02})_{\Sigma=3.00} \cdot 0.25H_2O$. (2) $4Al_2O_3 \cdot H_2O$.

Occurrence: In veinlets cutting amesite-fluorite-muscovite rock and fluorite-magnetite-diopside-vesuvianite skarn.

Association: Muscovite, fluorite, amesite, magnetite, diopside, vesuvianite, andradite.

Distribution: In the Solnech fluorite deposit, two km west of the Kara-Oba Mo–W deposit, Bet-Pak-Dal Desert, central Kazakhstan.

Name: For the Kazakh name, *Akdala*, for the vicinity of Kara-Oba, Kazakhstan.

Type Material: A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia.

References: (1) Shpanov, E.P., G.A. Sidorenko, and T.I. Stolyarova (1970) Akdalaite, a new hydrous modification of alumina. Zap. Vses. Mineral. Obshch., 99, 333–339 (in Russian). (2) (1971) Amer. Mineral., 56, 635 (abs. ref. 1).