Zincsilite $Zn_3Si_4O_{10}(OH)_2 \cdot 4H_2O(?)$

Crystal Data: n.d. *Point Group:* n.d. As fine foliae or lamellae, to 2 mm.

Physical Properties: *Cleavage:* {001}, perfect. Hardness = 1.5–2 D(meas.) = 2.67–2.71 D(calc.) = n.d.

Optical Properties: Semitransparent. *Color:* White to bluish. *Luster:* Pearly on cleavage. *Optical Class:* Biaxial (–). *Orientation:* $X \simeq \perp \{001\}$; $Z \wedge c = 3°$. $\alpha = 1.514(2)$ $\beta = 1.559(3)$ $\gamma = 1.562(2)$ 2V(meas.) = 0°–22°

Cell Data: *Space Group:* n.d. Z = n.d.

X-ray Powder Pattern: Batystau, Kazakhstan; strongest line 17.6 Å after glycerol treatment.
15.3 (100), 4.09 (70), 1.528 (60)

Chemistry:

	(1)	(2)	(3)
SiO_2	47.60	42.75	41.83
Al_2O_3	0.84	0.70	
Fe_2O_3	2.16	1.55	
MnO	0.40		
CuO	0.60	3.07	
ZnO	26.64	35.00	42.49
MgO	4.62	1.08	
CaO	6.40	2.00	
H_2O^+	4.35	6.00	
H_2O^-	6.35	8.50	
H_2O			15.68
Total	99.96	100.65	100.00

(1–2) Batystau, Kazakhstan; after recalculation by subtracting total Al_2O_3 and Fe_2O_3 and corresponding CaO and SiO_2 as garnet; remaining CaO and MgO and corresponding SiO_2 as diopside; and CuO, SiO_2, and H_2O as chrysocolla, the average corresponds to $Zn_3Si_{4.59}O_{12.18} \cdot 5.34H_2O$. (3) $Zn_3Si_4O_{10}(OH)_2 \cdot 4H_2O$.

Occurrence: In the zone of oxidation of a galena-sphalerite-chalcopyrite skarn deposit, as a pseudomorph after diopside.

Association: Chrysocolla, fluorite, "opal," manganese oxides.

Distribution: From the Batystau polymetallicdeposit, central Kazakhstan.

Name: For ZINC and SILicon in the composition.

Type Material: Vernadsky Geological Museum, Moscow, 46337; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 61517, 80086, vis5396.

References: (1) Smol'yaninova, N.N., V.A. Moleva, and N.I. Organova (1960) A new aluminum-free member of the montmorillonite-sauconite series. Acad. Sci. URSS, Comm. for Study of Clays, Rept. to Meeting of Int. Comm. for Study of Clays, 45–52 (in Russian). (2) (1961) Amer. Mineral., 46, 241–242 (abs. ref. 1).