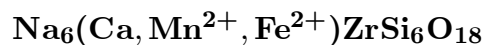


Zirsinalite

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Crystal Data: Hexagonal. *Point Group:* $\bar{3} 2/m$. As rounded or irregular grains, to 1.5 cm.**Physical Properties:** *Fracture:* Small conchoidal. Hardness = 5.5 VHN = 640–720
D(meas.) = 2.88–2.92 D(calc.) = 3.08 In air, rapidly coated with white sodium carbonate.**Optical Properties:** Transparent. *Color:* Colorless to slightly yellowish gray.*Luster:* Vitreous.*Optical Class:* Uniaxial (-). $\omega = 1.610$ $\epsilon = 1.605$ **Cell Data:** *Space Group:* $R\bar{3}m$. $a = 10.29(4)$ $c = 13.11(4)$ $Z = 3$ **X-ray Powder Pattern:** Mt. Koashva, Russia.

1.842 (10), 2.637 (9), 2.569 (8), 3.26 (6), 4.22 (4), 3.68 (4), 3.33 (4)

Chemistry:

	(1)	(2)	(3)
SiO ₂	52.10	52.00	49.67
TiO ₂	0.40	0.56	
ZrO ₂	12.84	12.84	16.98
FeO	0.40	0.80	
MnO	2.62	2.60	
CaO	4.80	4.75	7.73
Na ₂ O	26.00	25.67	25.62
H ₂ O	0.90	0.80	
Total	100.06	100.02	100.00

(1–2) Mt. Koashva, Russia; spectrographic analysis gives HfO₂ 0.42% and traces of Y, Zn, Be, Sr, Ba, K. (3) Na₆CaZrSi₆O₁₈.**Mineral Group:** Lovozerite group.**Occurrence:** In pegmatitic veinlets cutting alkalic rocks in differentiated alkalic massifs.**Association:** Aegirine, lomonosovite, barian lamprophyllite, lovozerite, eudialyte (Mt. Koashva, Russia).**Distribution:** On Mts. Koashva and Yukspor, Khibiny massif, and in the Lovozero massif, Kola Peninsula, Russia.**Name:** For ZIRconium, SILicon, and sodium, NAttrium, in the composition.**Type Material:** A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 75149.**References:** (1) Kapustin, Y.L., Z.V. Pudovkina, and A.V. Bykova (1974) Zirsinalite, a new mineral. *Zap. Vses. Mineral. Obshch.*, 103, 551–558 (in Russian). (2) (1975) *Amer. Mineral.*, 60, 489 (abs. ref. 1). (3) Pudovkina, Z.V., N.M. Chernitsova, A.A. Voronkov, and Y.A. Pyatenko (1980) Crystal structure of zirsinalite. *Doklady Acad. Nauk SSSR*, 250, 865–867 (in Russian).