Odikhinchaite $Na_9Sr_3[(H_2O)_2Na]Ca_6Mn_3Zr_3NbSi(Si_{24}O_{72})O(OH)_3(CO_3)\cdot H_2O$

Crystal Data: Hexagonal. *Point Group*: 3. As dense rosette-like aggregates to 11 mm, consisting of split lamellar individuals.

Physical Properties: *Cleavage*: Distinct on {001}. *Tenacity*: Brittle. *Fracture*: Uneven. Hardness = 5 VHN = 394-491, 430 average (20 g load). D(meas.) = 2.97(1) D(calc.) = 3.04

Optical Properties: Translucent to transparent. *Color*: Deep purple. *Streak*: White. *Luster*: Vitreous.
Optical Class: Uniaxial (-). ω = 1.638(2) ε = 1.630(2) *Pleochroism*: Strong, *O* = bright crimson, *E* = light yellow. *Absorption*: *O* > *E*.

Cell Data: *Space Group: R3m*. *a* = 14.2709(1) *c* = 30.0.23(1) Z = 3

X-Ray Diffraction Pattern: Odikhincha complex, Kotuy River basin, Taymyr, Siberia, Russia. 2.978 (100), 2.858 (86), 11.42 (64), 3.405 (53), 3.208 (45), 3.167 (44), 4.309 (41)

Chemistry:

	(1)		(1)
Na_2O	9.25	SiO_2	44.80
K_2O	0.59	ZrO_2	11.13
CaO	12.77	TiO_2	0.07
MnO	5.49	Nb_2O_5	4.17
FeO	0.75	Cl	0.69
MgO	0.24	CO_2	0.90
La_2O_3	0.38	H_2O	2.22
Ce_2O_3	0.39	–O = Cl	0.16
Nd_2O_3	0.15	Total	99.72
Al_2O_3	0.07		

(1) Odikhincha complex, Kotuy River basin, Taymyr, Siberia, Russia; average electron microprobe analysis supplemented by IR spectroscopy, H_2O by modified Penfield method, CO_2 by selection sorption of gaseous annealing products; corresponds to $H_{8.22}Na_{9.97}K_{0.42}Ca_{7.59}Sr_{1.87}Ce_{0.08}La_{0.08}Nd_{0.03}Mn_{2.58}Fe_{0.35}Mg_{0.20}Ti_{0.03}Zr_{3.01}Nb_{1.05}Si_{24.87}Al_{0.05}Cl_{0.65}C_{0.68}O_{81.71}$.

Polymorphism & Series: Taseqite-odikhinchaite solid-solution series.

Mineral Group: Eudialyte group. ^{N3}Sr, $^{N5}(H_2O)$, $^{M2}Mn^{2+}$, ^{M3}Nb, and $^{X1}(CO_3)^{2-}$ are species-defining.

Occurrence: In a peralkaline pegmatite vein hosted by melteigite in an ultrabasic alkaline-carbonatite, multistage, ring intrusion.

Association: Orthoclase, albite, aegirine, cancrinite, ancylite-(Ce), catapleiite, wadeite.

Distribution: From the Odikhincha ultrabasic complex, Maymecha-Kotuy alkaline province, Kotuy River basin, Taymyr, Krasnoyarskiy Kray, Siberia, Russia.

Name: For the discovery locality.

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (5587/1 and 5588/1).

References: (1) Gritsenko, Y.D., N.V. Chukanov, S.M. Aksenov, I.V. Pekov, D.A. Varlamov, L.A. Pautov, S.A. Vozchikova, D.A. Ksenofontov, and S.N. Britvin (2020) Odikhinchaite, $Na_9Sr_3[(H_2O)_2Na]Ca_6Mn_3Zr_3NbSi(Si_{24}O_{72})O(OH)_3(CO_3)\cdot H_2O$, a new eudialyte-group mineral from the Odikhincha intrusion, Taimyr Peninsula, Russia. Minerals, 10, 1062, 1-16. (2) Rastsvetaeva R.K., N.V. Chukanov, D.V. Lisitsin, M.V. Voronin, and D.A. Varlamov (2021) Crystal structure and indicatopy significance of odikhinchaite from the Khibiny alkaline complex. Vestnik of Geosciences, 316(4), 3-9.