Thomsonite-Sr $NaSr_2(Al_5Si_5)O_{20}\cdot 6\text{-}7H_2O$

Crystal Data: Orthorhombic. *Point Group*: 2/*m* 2/*m* 2/*m*. As prismatic crystals, to 1 mm, showing {100}, {010}, {001}, and {110}, some modified by {101} {011}, and {111} or as zones in crystals of thomsonite-Ca to 0.02 mm.

Physical Properties: *Cleavage*: Perfect on {100} and good on {010}. *Tenacity*: Brittle. *Fracture*: n.d. Hardness = 5 D(meas.) = 2.47(2) D(calc.) = 2.61

Optical Properties: Transparent. *Color*: Colorless. *Streak*: White. *Luster*: Vitreous. *Optical Class*: Biaxial (+). α = 1.528(2) β = 1.532(2) γ = 1.540(2) 2V(meas.) = 62(12)° 2V(calc.) = 71(5)° *Dispersion*: Weak, $r > v$. *Orientation*: $X = a$, $Y = c$, $Z = b$.

Cell Data: *Space Group*: *Pcnn.* a = 13.050(2) b = 13.123(2) c = 13.241(2) Z = 4

X-ray Powder Pattern: Mt. Rasvumchorr, Khibiny massif, Kola Peninsula, Russia. 2.960 (100), 2.860 (100), 2.691 (100), 3.49 (90), 4.66 (80), 3.19 (80), 6.63 (70)

Chemistry:

	(1)
Na_2O	3.22
K_2O	0.14
CaO	3.85
SrO	16.27
BaO	0.24
Fe_2O_3	0.03
Al_2O_3	27.65
SiO_2	33.51
H_2O	14.1
Total	99.01

(1) Mt. Rasvumchorr, Khibiny massif, Kola Peninsula, Russia; average electron microprobe analysis, H_2O by TGA; corresponds to $(Sr_{1.42}Ca_{0.62}Ba_{0.01})_{\Sigma=2.05}(Na_{0.94}K_{0.03})_{\Sigma=0.97}[Si_{5.05}Al_{4.91}O_{20}]\cdot 7.09H_2O$.

Polymorphism & Series: Forms an isomorphous series with thomsonite-Ca.

Mineral Group: Zeolite group.

Occurrence: In hydrothermal veinlets that cut the natrolite-bearing core of a pegmatite in an alkaline massif.

Association: Microcline, aegirine, annite, astrophyllite, magnetite, fluorapatite, pyrophanite, thomsonite-Ca (Mt. Rasvumchorr); calcite, tobermorite, fluorapophyllite, thaumasite, baryte (Mt. Yuksporn).

Distribution: At Mt. Rasvumchorr and Mt. Yuksporn, Khibiny massif, Kola Peninsula, Russia.

Name: The suffix alludes to the predominance of Sr rather than Ca in the *thomsonite* series.

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

References: (1) Pekov, I.V., E.V. Lovskaya, A.G. Turchkova, N.V. Chukanov, A.E. Zadov, R.K. Rastsvetaeva, and N.N. Kononkova (2001) Thomsonite-Sr, $(Sr,Ca)_2Na[Al_5Si_5O_{20}]\cdot 6\text{-}7H_2O$, a new mineral from the Khibiny massif (Kola Peninsula), and. Zap. Vseross. Mineral. Obshch., 130(4), 46-55 (in Russian, English abs.). (2) (2002) Amer. Mineral., 87, 1511-1512 (abs. ref. 1). (3) Gurbanova, O.A., R.K. Rastsvetaeva, I.V. Pekov, and A.G. Turchkova (2001) Crystal structure of Sr-rich thomsonite. Doklady Earth Sci., 376(1), 101-104. (4) (2001) Am. Mineral., 86, 1115 (abs. ref. 3).