

**Crystal Data:** Monoclinic, pseudohexagonal. *Point Group:* 2/*m*. Crystals, to 1 cm; in veinlets, lenses, and dense granular masses. *Twinning:* Finely polysynthetic, probably due to a phase change.

**Physical Properties:** *Cleavage:* Perfect on {001}, good on {100}, {110}. Hardness = 3.5 D(meas.) = 2.54 D(calc.) = 2.55 Soluble in H<sub>2</sub>O, yielding a strongly alkaline solution; surficially alters rapidly in air to thermonatrite.

**Optical Properties:** Transparent. *Color:* Colorless to pale yellow or pale rose if fresh, becoming grayish white on exposure. *Luster:* Vitreous to dull on exposure. *Optical Class:* Biaxial (-). *Orientation:*  $Y \simeq b$ .  $\alpha = 1.410(2)$   $\beta = 1.535(2)$   $\gamma = 1.543(2)$   $2V(\text{meas.}) = 28^\circ$

**Cell Data:** *Space Group:* C2/*m*.  $a = 8.905(4)$   $b = 5.237(3)$   $c = 6.045(2)$   $\beta = 101.32(1)^\circ$   $Z = 4$

**X-ray Powder Pattern:** Mt. Karnasurt, Kola Peninsula, Russia. 2.962 (100), 2.366 (70), 2.545 (60), 2.602 (40), 2.254 (35), 2.175 (35), 2.621 (30)

**Chemistry:**

	(1)	(2)
CO <sub>2</sub>	42.92	41.52
Na <sub>2</sub> O	57.08	58.48
Total	[100.00]	100.00

(1) Mt. Karnasurt, Kola Peninsula, Russia; CO<sub>2</sub> by gravimetry, Na<sub>2</sub>O by flame photometry; H<sub>2</sub>O proven absent by IR, recalculated to 100% after deduction of H<sub>2</sub>O 3.7% from admixed thermonatrite; corresponds then to Na<sub>1.92</sub>C<sub>1.02</sub>O<sub>3</sub>. (2) Na<sub>2</sub>CO<sub>3</sub>.

**Occurrence:** Locally abundant in deep drillholes in pegmatites occurring in differentiated alkaline massifs (Kola Peninsula, Russia); in sodalite xenoliths associated with an intrusive alkalic gabbro-syenite complex (Mont Saint-Hilaire, Canada).

**Association:** Thermonatrite, vinogradovite, shortite, pirssonite, gaylussite, nacaphite, natrosilite, villiaumite, neighborite, rasvumite, lomonosovite, pectolite, sodalite, fluorcaphite, many other minerals.

**Distribution:** In Russia, on the Kola Peninsula, on Mt. Karnasurt, Lovozero massif; in the Khibiny massif, on Mt. Rasvumchorr; near the Olenii stream; on Mt. Koashva; and on Mt. Restin'yun. At Mont Saint-Hilaire, Quebec, Canada.

**Name:** For sodium, *natrum*, the sole cation in the chemical formula of the mineral.

**Type Material:** Geology Museum, Kola Branch, Academy of Sciences, Apatity, 5710/1; Mining Institute, St. Petersburg, 1200/1; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 82761.

**References:** (1) Khomyakov, A.P. (1982) Natrite, Na<sub>2</sub>CO<sub>3</sub> – a new mineral. Zap. Vses. Mineral. Obsch., 111, 220–225 (in Russian). (2) (1983) Amer. Mineral., 68, 281–282 (abs. ref. 1). (3) Zubkova, N.V., D.Y. Pushcharovskiy, G. Ivaldi, G. Ferraris, I.V. Pekov, and N.V. Chukanov (2002) Crystal structure of natrite,  $\gamma$ -Na<sub>2</sub>CO<sub>3</sub>. Neues Jahrb. Mineral., Monatsh., 85–96.