

# Nastrophite

# Na(Sr, Ba)PO<sub>4</sub>•9H<sub>2</sub>O

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**Crystal Data:** Cubic. *Point Group:* 23. As cubic crystals, to 1 cm; in irregular aggregates.

**Physical Properties:** *Fracture:* Conchoidal. *Tenacity:* Brittle. *Hardness* = ~2  
D(meas.) = 2.05 D(calc.) = 2.03 Partially dehydrates under ambient conditions; partially dissolves in hot H<sub>2</sub>O.

**Optical Properties:** Semitransparent. *Color:* Colorless. *Luster:* Vitreous.  
*Optical Class:* Isotropic. *n* = 1.502(1)

**Cell Data:** *Space Group:* P2<sub>1</sub>3. *a* = 10.559(1) *Z* = 4

**X-ray Powder Pattern:** Lovozero massif, Kola Peninsula, Russia.  
2.54 (10), 4.67 (9), 5.21 (8), 3.49 (5), 1.953 (5), 3.69 (4), 1.918 (4)

<b>Chemistry:</b>	(1)
	P <sub>2</sub> O <sub>5</sub> 19.04
	CaO 0.41
	SrO 22.19
	BaO 8.17
	Na <sub>2</sub> O 8.21
	K <sub>2</sub> O 0.05
	H <sub>2</sub> O 40.52
	insol. 1.64
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	Total 100.23

(1) Mt. Alluaiv, Kola Peninsula, Russia; K, Na, Ca by flame photometry, insoluble = aegirine, PO<sub>4</sub> and H<sub>2</sub>O confirmed by IR; separate determination of H<sub>2</sub>O on fully hydrated material gives 43.5%, then corresponding to Na<sub>0.98</sub>(Sr<sub>0.79</sub>Ba<sub>0.20</sub>Ca<sub>0.03</sub>)<sub>Σ=1.02</sub>P<sub>1.00</sub>O<sub>4</sub>•8.96H<sub>2</sub>O.

**Occurrence:** In pegmatitic veinlets in cancrinite and nepheline syenites.

**Association:** Vuonnemite, steenstrupine-(Ce), ilmajokite, mountainite (Mt. Karnasurt, Kola Peninsula, Russia); K-feldspar, sodalite, analcime, natrolite, davyne, aegirine (Mt. Alluaiv, Kola Peninsula, Russia).

**Distribution:** On Mts. Karnasurt and Alluaiv, Lovozero massif, Kola Peninsula, Russia.

**Name:** For sodium, NAtrium, STROntium, and PHosphorus in the composition.

**Type Material:** Geology Museum, Kola Branch, Academy of Sciences, Apatity, 5529; Mining Institute, St. Petersburg, 1194/1–2; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 81405; The Natural History Museum, London, England, 1994,16.

**References:** (1) Khomyakov, A.P., M.E. Kazakova, G.N. Popova, and Y.A. Malinovskii (1981) Nastrophite Na(Sr, Ba)PO<sub>4</sub>•9H<sub>2</sub>O – a new mineral. Zap. Vses. Mineral. Obshch., 110, 604–607 (in Russian). (2) (1982) Amer. Mineral., 67, 857 (abs. ref. 1). (3) Baturin, S.V., Y.A. Malinovskii, and N.V. Belov (1981) Crystal structure of nastrophite Na(Sr, Ba)PO<sub>4</sub>•9H<sub>2</sub>O. Kristallografiya (Sov. Phys. Crystal.), 26, 1023–1026. (4) Pekov, I.V. (1998) Minerals first discovered on the territory of the former Soviet Union, 146–147.