

Nastrophite

Na(Sr, Ba)PO₄•9H₂O

©2001-2005 Mineral Data Publishing, version 1

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 H₂O.

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

Cell Data: *Space Group:* P2₁3. *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)

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

(1) Mt. Alluaiv, Kola Peninsula, Russia; K, Na, Ca by flame photometry, insoluble = aegirine, PO₄ and H₂O confirmed by IR; separate determination of H₂O on fully hydrated material gives 43.5%, then corresponding to Na_{0.98}(Sr_{0.79}Ba_{0.20}Ca_{0.03})_{Σ=1.02}P_{1.00}O₄•8.96H₂O.

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)PO₄•9H₂O – 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)PO₄•9H₂O. *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.