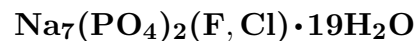


Natrophosphate



©2001-2005 Mineral Data Publishing, version 1

Crystal Data: Cubic. *Point Group:* $4/m\bar{3}2/m$. Rare as octahedra, dodecahedra, or tetrahedra, to 1 cm, typically rounded; in monomineralic aggregates and veinlets.

Physical Properties: *Cleavage:* On {111}, imperfect, in slightly altered specimens. *Fracture:* Conchoidal. *Tenacity:* Brittle. *Hardness* = 1–2.5 *D(meas.)* = 1.71–1.72 *D(calc.)* = n.d. Fluoresces pale orange under UV, with a stronger orange cathodoluminescence; partially decomposes to a white powder on exposure to air, dissolves in H₂O.

Optical Properties: Transparent to translucent. *Color:* Colorless to white. *Luster:* Vitreous to greasy, waxy to frosty on exposure.

Optical Class: Isotropic. *n* = 1.450–1.462

Cell Data: *Space Group:* *Fd3c*. *a* = 27.79–27.93 *Z* = 56

X-ray Powder Pattern: Mt. Yukspor, Kola Peninsula, Russia. 2.67 (10), 2.42 (9), 8.18 (7), 3.05 (6), 4.93 (5), 4.06 (5), 2.90 (5)

Chemistry:	(1)	(2)		(1)	(2)
SO ₃		0.97	F	3.20	3.30
P ₂ O ₅	21.51	18.00	Cl		1.86
CO ₂	2.60		H ₂ O	41.30	47.04
Na ₂ O	32.60	29.53	–O = (F, Cl)	1.34	1.81
			Total	99.87	98.89

(1) Mt. Karnasurt, Kola Peninsula, Russia; with a separate DTA determination of H₂O 47.0%, and after deduction of CO₂ attributed to atmospheric contamination, then corresponds to Na_{6.94}(PO₄)₂F_{1.11} • 18.2H₂O. (2) Aris quarry, Namibia; Na by AA, P, S, F, Cl by ion chromatograph, H₂O by Karl-Fischer titration; corresponds to Na_{7.04}[(PO₄)_{1.87}(SO₄)_{0.09}]_{Σ=1.96} (F_{1.28}Cl_{0.39})_{Σ=1.67} • 19.29H₂O.

Occurrence: A rare mineral in ijolite-urtite pegmatite in a differentiated alkaline massif (Kola Peninsula, Russia); in sodalite xenoliths in an intrusive alkalic gabbro-syenite complex (Mont Saint-Hilaire, Canada); in miarolitic cavities in phonolite (Aris quarry, Namibia).

Association: Villiaumite, aegirine, delhayelite, strontian apatite, natrolite, pectolite, albite (Mt. Yukspor, Kola Peninsula, Russia); villiaumite, nahpoite, dorfmanite, kogarkoite, sidorenkite, thermonatrite, analcime, aegirine (Mts. Alluaiv and Karnasurt, Kola Peninsula, Russia); villiaumite, ussingite, vuonnemite, lovozerite, eudialyte, steenstrupine, chkalovite, lueshite, serandite, griceite, kogarkoite (Mont Saint-Hilaire, Canada); villiaumite, aegirine, albite, eudialyte (Aris quarry, Namibia).

Distribution: On Mts. Yukspor and Koashva, Khibiny massif, and Mts. Karnasurt and Alluaiv, Lovozero massif, Kola Peninsula, Russia. From Mont Saint-Hilaire, Quebec, Canada. In the Aris quarry, about 25 km south of Windhoek, Namibia.

Name: For sodium, *natrium*, and *phosphate* in the composition.

Type Material: Vernadsky Geological Museum, Moscow, 51117; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 74383.

References: (1) Kapustin, Y.L., A.V. Bykova, and V.I. Bukin (1972) Natrophosphate – a new mineral. *Zap. Vses. Mineral. Obshch.*, 101, 80–86 (in Russian). (2) (1973) *Amer. Mineral.*, 58, 139 (abs. ref. 1). (3) Horváth, L. and R.A. Gault (1990) The mineralogy of Mont Saint-Hilaire, Quebec. *Mineral. Record*, 21, 284–359, esp. 325. (4) Genkina, E.A. and A.P. Khomyakov (1992) Refinement of the crystal structure of natural natrophosphate. *Kristallografiya (Sov. Phys. Crystal.)*, 37, 1559–1560. (5) Khomyakov, A.P. (1995) Mineralogy of hyperagpaitic alkaline rocks, 162–164. (6) Petersen, O.V., T. Fockenberg, P.C. Toft, and M. Rattay (1997) Natrophosphate from the Aris phonolites, Windhoek, Namibia. *Neues Jahrb. Mineral., Monatsh.*, 511–517.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise without the prior written permission of Mineral Data Publishing.