

Shomiokite-(Y)**Na₃(Y, Dy)(CO₃)₃•3H₂O**

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Crystal Data: Orthorhombic. *Point Group:* *mm*2. Short prismatic pseudohexagonal crystals, to 2 mm, showing {010}, {110}, {111}, {011}, in rosettelike aggregates; massive granular, to 30 cm.

Physical Properties: *Cleavage:* On {110}, perfect; a parting on {001}. *Hardness* = 2–3
D(meas.) = 2.52(5) D(calc.) = 2.59

Optical Properties: Translucent, transparent in small pieces. *Color:* Colorless, pink, pale yellow. *Luster:* Dull, waxy to silky.

Optical Class: Biaxial (+). *Orientation:* X = b; Y = c; Z = a. *Dispersion:* r > v.
α = 1.528(2) β = 1.529(2) γ = 1.531(2) 2V(meas.) = 45°

Cell Data: *Space Group:* *Pbn*2₁. a = 10.034–10.136 b = 17.348–17.358 c = 5.946–5.970
Z = 4

X-ray Powder Pattern: Mt. Alluaiv, Kola Peninsula, Russia.

2.076 (100), 2.858 (70), 4.85 (65), 6.53 (55), 5.05 (50), 2.597 (50), 2.229 (50)

Chemistry:	(1)	(2)	(3)	(1)	(2)	(3)
CO ₂	32.10	[33.36]	33.68	Ho ₂ O ₃	0.63	0.73
Y ₂ O ₃	21.52	19.05	28.81	Er ₂ O ₃	1.24	2.13
La ₂ O ₃		0.20		Eu ₂ O ₃		0.00
Ce ₂ O ₃	0.09	1.81		Yb ₂ O ₃		1.55
Pr ₂ O ₃		0.52		Lu ₂ O ₃		0.26
Nd ₂ O ₃		2.79		CaO	0.01	
Sm ₂ O ₃		0.95		Na ₂ O	21.93	23.25 23.72
Gd ₂ O ₃	1.80	1.05		H ₂ O	14.20	[13.66] 13.79
Tb ₂ O ₃	0.46	0.36		Total	[99.01]	[104.88] 100.00
Dy ₂ O ₃	5.03	2.81				

(1) Mt. Alluaiv, Kola Peninsula, Russia; H₂O by coulometry, original total given as 99.10%; corresponds to (Na_{2.93}Ca_{0.01})_{Σ=2.94}(Y_{0.79}Dy_{0.11}Gd_{0.04}Er_{0.03}Ho_{0.01}Tb_{0.01})_{Σ=0.99}(C_{1.06}O₃)₃•3.26H₂O. (2) Mont Saint-Hilaire, Canada; by electron microprobe, CO₂, H₂O calculated from stoichiometry; corresponds to (Na_{2.97}(Y_{0.67}Nd_{0.07}Dy_{0.06}Ce_{0.04}Er_{0.04}Yb_{0.03}Sm_{0.02}Gd_{0.02}Ho_{0.02}La_{0.01}Tb_{0.01}Pr_{0.01}Tm_{0.01}Lu_{0.01})_{Σ=1.02}(CO₃)₃•3H₂O. (3) Na₃Y(CO₃)₃•3H₂O.

Occurrence: In interstices and as large segregations in potassic feldspar in pegmatites (Mt. Alluaiv, Kola Peninsula, Russia); associated with an intrusive alkalic gabbro-syenite complex (Mont Saint-Hilaire, Canada).

Association: Albite, cancrinite, aegirine, elpidite, natron, natroxalate, kogarkoite, villiamite, neighborite, trona, sidorenkite, siderite, sphalerite (Mt. Alluaiv, Kola Peninsula, Russia); microcline, albite, aegirine, analcime, rhodochrosite, eudialyte, catapleiite, sphalerite, petersenite-(Ce) (Mont Saint-Hilaire, Canada).

Distribution: From Mt. Alluaiv, Lovozero massif, Kola Peninsula, Russia. At Mont Saint-Hilaire, Quebec, Canada.

Name: For the Shomiok River, in the Lovozero massif, flowing near Mt. Alluaiv, where the mineral was first found.

Type Material: A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, r545/1; The Natural History Museum, London, England, 1994,030.

References: (1) Khomyakov, A.P., N.G. Shumyatskaya, and L.T. Polezhaeva (1994) Shomiokite-(Y) – Na₃Y(CO₃)₃•3H₂O – a new mineral. Zap. Vses. Mineral. Obshch., 121, 129–132 (in Russian). (2) (1994) Amer. Mineral., 79, 765–766 (abs. ref. 1). (3) Rastsvetaeva, R.K., D.Y. Pushcharovskiy, and I.G. Pekov (1996) Crystal structure of shomiokite-(Y), Na₃Y(CO₃)₃•3H₂O. Eur. J. Mineral., 8, 1249–1255. (4) Grice, J. (1996) The crystal structure of shomiokite-(Y). Can. Mineral., 34, 649–655. (5) Pekov, I.V. (1998) Minerals first discovered on the territory of the former Soviet Union. Ocean Pictures, Moscow, 185–186.

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