

Georgbarsanovite

Crystal Data: Hexagonal. *Point Group:* 3m. As 1-2 cm thick, branching veinlets with either gradational or sharp contacts with eudialyte.

Physical Properties: *Cleavage:* None observed. *Fracture:* Uneven to conchoidal.

Tenacity: Brittle. *Hardness* = 5 *D(meas.)* = 3.05(2) *D(calc.)* = 3.11

Optical Properties: Transparent to translucent. *Color:* Yellow-green. *Streak:* White.

Luster: Vitreous.

Optical Class: Uniaxial (–) [some grains show anomalous biaxial character, $2V = 10\text{--}15^\circ$].

$\omega = 1.639(2)$ (bottle green) $\varepsilon = 1.631(2)$ (pale yellow)

Cell Data: *Space Group:* $R\bar{3}m$. $a = 14.274(2)$ $c = 30.02(1)$ $Z = 3$

X-ray Powder Pattern: Kola Peninsula, Russia.

3.202 (100), 2.975 (98), 2.857 (94), 3.155 (71), 4.304 (62), 6.42 (54), 2.591 (54)

Chemistry:	(1)		(1)
Na ₂ O	11.03	Y ₂ O ₃	0.43
K ₂ O	0.35	ZrO ₂	12.08
CaO	10.73	HfO ₂	0.28
SrO	2.24	TiO ₂	0.11
BaO	0.14	Nb ₂ O ₅	3.72
FeO	5.57	SiO ₂	46.03
MnO	2.55	Cl	1.20
La ₂ O ₃	0.87	F	0.35
Ce ₂ O ₃	1.58	LOI	0.48
Nd ₂ O ₃	0.65	<u>–O = (F, Cl)₂</u>	<u>0.42</u>
		Total	99.97

(1) Kola Peninsula, Russia; electron microprobe analysis, IR spectroscopy confirms the presence of (OH), H₂O and minor CO₂, corresponding to $(\text{Na}_{11.73}\text{K}_{0.24})_{\Sigma=11.97}(\text{Mn}_{1.19}\text{Sr}_{0.71}\text{REE}_{0.63}\text{Ca}_{0.30}\text{Y}_{0.13}\text{Ba}_{0.03})_{\Sigma=2.99}\text{Ca}_6(\text{Fe}^{2+}_{2.55}\text{Zr}_{0.23}\text{Ti}_{0.05}\text{Hf}_{0.04})_{\Sigma=2.87}\text{Zr}_3\text{Nb}_{0.92}\text{Si}_{25.25}\text{O}_{76.48}\text{Cl}_{1.11}\text{F}_{0.61}\cdot 0.88\text{H}_2\text{O}$.

Mineral Group: Eudialyte subgroup of the eudialyte group.

Occurrence: A late stage reaction product in nepheline-feldspar pegmatite associated with an alkaline massif.

Association: Eudialyte.

Distribution: In boulders, upper reaches of the Petreluisa River valley, Khibiny alkaline massif, Kola Peninsula, Russia.

Name: Honors prominent Russian mineralogist Georgiy Pavlovich Barsanov (1907-1991).

Type Material: A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia (catalog no. 61504).

References: (1) Khomyakov, A.P., G.N. Nechelyustov, I.A. Ekimenkova, R.K. Rastsvetayeva (2005) Georgbarsanovite, $\text{Na}_{12}(\text{Mn, Sr, REE})_3\text{Ca}_6\text{Fe}^{2+}_3\text{Zr}_3\text{NbSi}_{25}\text{O}_{76}\text{Cl}_2\cdot\text{H}_2\text{O}$, a mineral species of the eudialyte group: revalidation of barsanovite and the new name of the mineral. *Zapiski Rossiyskogo Mineralogicheskogo Obshchestva*, 134(6), 47-57 (in Russian, English abstract). (2) (2008) *Amer. Mineral.*, 93, 702-703 (abs. ref. 1).