

Crystal Data: Hexagonal. *Point Group:* 3m. Prismatic crystals display {10 $\bar{1}$ 1}, {11 $\bar{2}$ 0}, {10 $\bar{1}$ 1} and {02 $\bar{2}$ 1}, to 0.2 mm.

Physical Properties: *Parting:* Distinct on {0001}. *Fracture:* Conchoidal. *Tenacity:* Brittle. Hardness = 7.5 VHN = 1417 (1210-1530) (50 g load). D(meas.) = 3.32(2) D(calc.) = 3.213

Optical Properties: Transparent. *Color:* Dark green with a yellowish brown tint. *Streak:* Yellowish brownish green. *Luster:* Resinous. *Optical Class:* Uniaxial (-). $\omega = 1.786(5)$ $\epsilon = 1.729(5)$ *Pleochroism:* Strong, *O* = dark brownish green; *E* = yellowish green.

Cell Data: *Space Group:* R3m. $a = 16.1908(4)$ $c = 7.4143(2)$ $Z = 3$

X-ray Powder Pattern: Sludyanka, Lake Baikal, Russia. 2.61 (100), 6.53 (90), 3.05 (90), 2.07 (90), 4.03 (80), 3.57 (70), 1.95 (50)

Chemistry:	(1)		(1)
SiO ₂	33.05	Na ₂ O	2.50
TiO ₂	0.41	K ₂ O	0.32
B ₂ O ₃	[9.59]	F	0.13
Al ₂ O ₃	4.30	H ₂ O	[2.60]
Cr ₂ O ₃	1.48	- O = F ₂	0.06
V ₂ O ₃	38.56	Total	101.10
MgO	8.21		

(1) Sludyanka, Lake Baikal, Russia; average of 8 electron microprobe analyses supplemented by FTIR spectrometry, B₂O₃ and H₂O calculated from stoichiometry; corresponds to $X(\text{Na}_{0.88}\text{K}_{0.07}\square_{0.05})^Y(\text{V}^{3+}_{2.46}\text{Mg}_{0.48}\text{Ti}_{0.06})^Z(\text{V}^{3+}_{3.14}\text{Mg}_{1.74}\text{Al}_{0.91}\text{Cr}^{3+}_{0.21})^I[(\text{Si}_{5.99}\text{Al}_{0.01})\text{O}_{18}]^B(\text{BO}_3)_3^V(\text{OH})_3^W[\text{O}_{0.78}(\text{OH})_{0.14}\text{F}_{0.08}]$.

Polymorphism & Series: Complete solid-solution exists with vanadium-dravite, oxy-chromium-dravite, vanadio-oxy-chromium-dravite, and oxy-dravite.

Mineral Group: Tourmaline supergroup, alkali group, oxy-subgroup 3.

Occurrence: In Cr-V-bearing calcite-quartz-diopside metamorphic rocks (granulite facies).

Association: Quartz, calcite, Cr-V-bearing diopside, tremolite, di- and trioctahedral micas, Mg-Fe-V-Cr spinels, uvarovite-goldmanite, escolaitite-karelianite, kosmochlor-natalyite, V-bearing titanite and anatase, Cr-V-bearing dravite, pyrite, barite.

Distribution: From the Sludyanka complex, Southern Lake Baikal region, Russia.

Name: Formerly known as “vanadium-dravite”. As an oxy-dravite with dominant vanadium in the Y and Z sites and magnesium the dominant divalent cation in Z.

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow.

References: (1) Bosi, F., L.Z. Reznitskii, and E.V. Sklyarov (2013) Oxy-vanadium-dravite, NaV₃(V₄Mg₂)(Si₆O₁₈)(BO₃)₃(OH)₃O: Crystal structure and redefinition of the “vanadium-dravite” tourmaline. *Amer. Mineral.*, 98, 501-505. (2) Bosi, F., L. Reznitskii, U. Hålenius, and H. Skogby (2016) Crystal chemistry of Al-V-Cr oxy-tourmalines from Sludyanka complex, Lake Baikal, Russia. *Eur. J. Mineral.*, 29, 457-472. (3) Reznitsky, L.Z., E.V. Sklyarov, Z.V. Ushchepovskaya, N.V. Nartova, A.A. Kashaev, N.S. Karmanov, S.V. Kanakin, A.S. Smolin, and E.A. Nekrosova (2001) Vanadiumdravite, NaMg₃V₆[Si₆O₁₈][BO₃]₃(OH)₄, a new mineral of the tourmaline group. *Zap. Vses. Mineral. Obshch.*, 130(2), 59-72 (in Russian). (4) (2002) *Amer. Mineral.*, 87(10), 1512 (abs. ref. 3).