

Vanadio-oxy-chromium-dravite**NaV₃(Cr₄Mg₂)Si₆O₁₈(BO₃)₃(OH)₃O**

Crystal Data: Hexagonal. *Point Group:* 3*m*. As terminated prismatic crystals, to 0.3 mm.

Physical Properties: *Cleavage:* [Poor/indistinct on {0001}.] *Fracture:* Conchoidal.
Tenacity: Brittle. *Hardness* = 7.5 *D(meas.)* = n.d. *D(calc.)* = 3.3

Optical Properties: Transparent. *Color:* Emerald-green. *Streak:* Pale green. *Luster:* Vitreous.
Optical Class: Uniaxial (-). $\omega = 1.767(5)$ $\varepsilon = 1.710(5)$ *Pleochroism:* *O* = dark green;
E = pale green.

Cell Data: *Space Group:* *R*3*m*. $a = 16.1260(2)$ $c = 7.3759(1)$ $Z = 3$

X-ray Powder Pattern: Pereval marble quarry, Sludyanka, Lake Baikal, Russia.
 6.509 (100), 3.564 (53), 3.022 (47), 2.611 (42), 2.171 (42), 4.022 (40), 4.293 (31)

Chemistry:	(1)	(2)		(1)	(2)
SiO ₂	32.75	32.27	ZnO	bdl	0.10
TiO ₂	bdl	0.07	CaO	bdl	0.05
B ₂ O ₃	[9.56]	[9.40]	Na ₂ O	2.52	2.71
Al ₂ O ₃	7.64	4.54	K ₂ O	0.24	0.08
Cr ₂ O ₃	12.87	24.32	F	0.25	0.49
V ₂ O ₃	24.36	14.88	H ₂ O	[2.40]	[2.33]
Fe ₂ O ₃	[0.42]	[0.86]	-O = F ₂	0.11	0.21
MgO	7.19	7.75	Total	100.10	99.63

(1) Pereval marble quarry, Sludyanka, Lake Baikal, Russia; average of 10 electron microprobe analyses supplemented by FTIR spectrometry, B₂O₃, H₂O and Fe₂O₃:FeO calculated; corresponds to ${}^X(\text{Na}_{0.89}\text{K}_{0.06}\square_{0.05})^Y(\text{V}^{3+}_{2.77}\text{Mg}_{0.17}\text{Fe}^{3+}_{0.06})^Z(\text{Cr}^{3+}_{1.85}\text{Al}_{1.59}\text{V}^{3+}_{0.78}\text{Mg}_{1.78})^T[(\text{Si}_{5.95}\text{Al}_{0.05})\text{O}_{18}]^B(\text{BO}_3)_3^V[(\text{OH})_{2.91}\text{O}_{0.09}]^W(\text{O}_{0.86}\text{F}_{0.14})$.

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

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

Occurrence: A primary mineral in metaquartzite (granulite facies) in marble.

Association: Quartz, Cr-V-bearing tremolite, muscovite-celadonite-chromphyllite-roscoelite, diopside-kosmochlor-natalyite, Cr-bearing goldmanite, esclaite-karelianite, dravite-oxy-vanadium-dravite, V-bearing titanite and rutile, ilmenite, oxyvanite-berdesinskiite, shreyerite, plagioclase, scapolite, zircon, pyrite.

Distribution: From the Pereval marble quarry, Sludyanka, Lake Baikal, Russia.

Name: As an oxy-chromium-dravite with dominant vanadium in the Y site and V³⁺ contents between 5 and 1.5 atoms per formula unit.

Type Material: Museum of Mineralogy, Earth Sciences Department, Sapienza University, Rome, Italy (33067).

References: (1) Bosi, F., L. Reznitskii, H. Skogby, and U. Hålenius (2014) Vanadio-oxy-chromium-dravite, NaV₃(Cr₄Mg₂)(Si₆O₁₈)(BO₃)₃(OH)₃O, a new mineral species of the tourmaline supergroup. *Amer. Mineral.*, 99, 1155-1162.