

**Chromo-alumino-povondraite****NaCr<sub>3</sub>(Al<sub>4</sub>Mg<sub>2</sub>)Si<sub>6</sub>O<sub>18</sub>(BO<sub>3</sub>)<sub>3</sub>(OH)<sub>3</sub>O**

**Crystal Data:** Hexagonal. *Point Group:* 3m. 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.) = 3.227

**Optical Properties:** Transparent. *Color:* Green. *Streak:* Pale green. *Luster:* Vitreous. *Optical Class:* Uniaxial (−).  $\omega = 1.745(5)$   $\varepsilon = 1.685(5)$  *Pleochroism:* O = emerald green; E = pale yellowish green.

**Cell Data:** *Space Group:* R3m.  $a = 16.0277(2)$   $c = 7.3085(1)$  Z = 3

**X-ray Powder Pattern:** Pereval marble quarry, Sludyanka, Lake Baikal, Russia. 2.601 (100), 4.019 (55), 3.010(51), 6.496 (47), 2.006 (46), 3.548 (44), 4.279 (42)

<b>Chemistry:</b>	(1)		(1)
SiO <sub>2</sub>	34.06	CaO	0.37
B <sub>2</sub> O <sub>3</sub>	[9.93]	Na <sub>2</sub> O	2.57
Al <sub>2</sub> O <sub>3</sub>	14.94	K <sub>2</sub> O	0.08
Cr <sub>2</sub> O <sub>3</sub>	25.09	F	0.45
V <sub>2</sub> O <sub>3</sub>	1.56	H <sub>2</sub> O	[2.59]
Fe <sub>2</sub> O <sub>3</sub>	[0.10]	<u>-O=F-</u>	0.19
MgO	8.65	Total	100.20

(1) Pereval marble quarry, Sludyanka, Lake Baikal, Russia; average of 10 electron microprobe analyses supplemented by FTIR spectrometry, B<sub>2</sub>O<sub>3</sub>, H<sub>2</sub>O and Fe<sub>2</sub>O<sub>3</sub>:FeO calculated; corresponds to  $^X_{\text{Na}}(^{0.87}\text{Ca}_{0.07}\square_{0.04}\text{K}_{0.02})_{\Sigma=1.00}^{Y}(\text{Cr}^{3+}_{2.29}\text{Mg}_{0.71})_{\Sigma=3.00}^{Z}(\text{Al}_{3.04}\text{Mg}_{1.54}\text{Cr}^{3+}_{1.18}\text{V}^{3+}_{0.22}\text{Fe}^{3+}_{0.01})_{\Sigma=6.00}$  T[(Si<sub>15.96</sub>Al<sub>0.04</sub>)O<sub>18</sub>]<sup>B</sup>(BO<sub>3</sub>)<sub>3</sub><sup>V</sup>(OH)<sub>3</sub><sup>W</sup>[O<sub>0.73</sub>F<sub>0.25</sub>(OH)<sub>0.02</sub>]<sub>\Sigma=1.00</sub>.

**Polymorphism & Series:** Solid-solution exists between the species chromo-alumino-povondraite, oxy-chromium-dravite and oxy-dravite.

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

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

**Association:** Dravite, oxy-chromium-dravite, oxy-dravite, quartz, calcite, chromphyllite, eskolaite, chromite, uvarovite, chromian phlogopite, pyroxenes of the diopsidic-kosmochlor series, Cr-bearing tremolite, Cr-bearing titanite, Cr-bearing rutile, pyrite.

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

**Name:** For its relation to povondraite with dominant chromium in the Y site and aluminum in the Z site.

**Type Material:** Museum of Mineralogy, Earth Sciences Department, Sapienza University, Rome, Italy (33069/1).

**References:** (1) Reznitskii, L., C.M. Clark, F.C. Hawthorne, J.D. Grice, H. Skogby, U. Hälenius, and F. Bosi (2014) Chromo-alumino-povondraite, NaCr<sub>3</sub>(Al<sub>4</sub>Mg<sub>2</sub>)(Si<sub>6</sub>O<sub>18</sub>)(BO<sub>3</sub>)<sub>3</sub>(OH)<sub>3</sub>O, a new mineral species of the tourmaline supergroup. Amer. Mineral., 99, 1767-1773.