Chromo-alumino-povondraite  \( \text{NaCr}_3(\text{Al}_4\text{Mg}_2)\text{Si}_6\text{O}_{18}\text{(BO}_3)_3\text{(OH)}_3\text{O} \)

Crystal Data: Hexagonal.  \textit{Point Group:} 3m.  As terminated prismatic crystals, to 0.3 mm.

Physical Properties:  \textit{Cleavage:} [Poor/indistinct on \{0001\}.]  \textit{Fracture:} Conchoidal.  
\textit{Tenacity:} Brittle.  \textit{Hardness = 7.5}  \textit{D(meas.) = n.d.}  \textit{D(calc.) = 3.227}

Optical Class: Uniaxial (−).  \( \omega = 1.745(5) \)  \( \epsilon = 1.685(5) \)  Pleochroism: \( O = \text{emerald green} \);  \( E = \text{pale yellowish green} \).

Cell Data:  \textit{Space Group:} \( R\overline{3}m \).  \( a = 16.0277(2) \)  \( c = 7.3085(1) \)  \( Z = 3 \)

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)

Chemistry:  
\[
\begin{array}{ccc}
\text{SiO}_2 & 34.06 & \text{CaO} \\
\text{B}_2\text{O}_3 & [9.93] & \text{Na}_2\text{O} \\
\text{Al}_2\text{O}_3 & 14.94 & \text{K}_2\text{O} \\
\text{Cr}_2\text{O}_3 & 25.09 & \text{F} \\
\text{V}_2\text{O}_3 & 1.56 & \text{H}_2\text{O} \\
\text{Fe}_2\text{O}_3 & [0.10] & \text{O} = \text{F}_2 \\
\text{MgO} & 8.65 & \text{Total} \\
\end{array}
\]

(1)  Pereval marble quarry, Sludyanka, Lake Baikal, Russia; average of 10 electron microprobe analyses supplemented by FTIR spectrometry, \( \text{B}_2\text{O}_3\), \( \text{H}_2\text{O} \) and \( \text{Fe}_2\text{O}_3;\text{FeO} \) calculated; corresponds to \( \chi(\text{Na}_{0.87}\text{Ca}_{0.07}\text{K}_{0.04}\text{Na}_{0.02})\chi(\text{Cr}_{2.29}\text{Mg}_{0.71})\chi(\text{Al}_{3.04}\text{Mg}_{1.54}\text{Cr}_{3+}\text{V}_{3+})\chi(\text{Fe}^{3+}_{0.01})\chi_{\text{(OH)}_{2.22}\text{Fe}^{3+}_{0.01}\text{F}_{0.25}\text{OH}_{0.02}}\).

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 diopside-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. Hålenius, and F. Bosi (2014) Chromo-alumino-povondraite, \( \text{NaCr}_3(\text{Al}_4\text{Mg}_2)\text{Si}_6\text{O}_{18}\text{(BO}_3)_3\text{(OH)}_3\text{O} \), a new mineral species of the tourmaline supergroup.  Amer. Mineral., 99, 1767-1773.