Mogovidite  

\[ \text{Na}_9(\text{Ca,Na})_6\text{Ca}_6(\text{Fe}^{3+},\text{Fe}^{2+})_2\text{Zr}_3\square\text{Si}_{25}\text{O}_{72}(\text{CO}_3)(\text{OH},\text{H}_2\text{O})_4 \]

**Crystal Data:** Hexagonal.  
*Point Group:* 3/m.  
As tabular crystals exhibiting 10\(\overline{1}\) 1\}, {01\(\overline{1}\) 2} and \{0001\}, to 2 cm.

**Physical Properties:**  
*Cleavage:* n.d.  
*Fracture:* Conchoidal.  
*Tenacity:* Brittle.  
*Hardness:* 5.5  
*D(meas.):* 2.90(1)  
*D(calc.):* 2.908

**Optical Properties:**  
*Translucent.*  
*Color:* Brown to reddish brown.  
*Streak:* White.  
*Luster:* Vitreous.  
*Optical Class:* Uniaxial (-).  
\(\omega = 1.618(1)\)  
\(\epsilon = 1.611(2)\)  
*Pleochroism:* Weak, colorless to yellow.

**Cell Data:**  
*Space Group:* R3m.  
*a = 14.232(3)\)  
*c = 30.210(3)\)  
*Z = n.d.*

**X-ray Powder Pattern:** Kovdor massif, Kola Peninsula, Russia.  
3.213 (100), 2.977 (91), 2.859 (79), 3.027 (65), 4.31 (64), 2.703 (46), 2.595 (45)

**Chemistry:**

\[
\begin{align*}
\text{Na}_2\text{O} & \quad 9.78 & \text{SiO}_2 & \quad 47.49 \\
\text{K}_2\text{O} & \quad 0.36 & \text{TiO}_2 & \quad 0.23 \\
\text{CaO} & \quad 18.03 & \text{ZrO}_2 & \quad 11.90 \\
\text{MnO} & \quad 0.68 & \text{Nb}_2\text{O}_5 & \quad 1.72 \\
\text{FeO} & \quad 1.32 & \text{Cl} & \quad 0.52 \\
\text{Fe}_2\text{O}_3 & \quad 3.78 & \text{H}_2\text{O} & \quad 1.25 \\
\text{La}_2\text{O}_3 & \quad 0.15 & \text{CO}_2 & \quad 1.42 \\
\text{Ce}_2\text{O}_3 & \quad 0.28 & _\text{O} = \text{Cl} & \quad 0.12 \\
\text{Total} & \quad 98.82 \\
\end{align*}
\]

(1) Kovdor massif, Kola Peninsula, Russia; by electron microprobe analysis, IR and Mössbauer spectroscopy, and TGA; corresponding to Na\(_9\)(Ca\(_{4.05}\)Na\(_{0.87}\)K\(_{0.24}\)Ce\(_{0.06}\)La\(_{0.03}\)\(\square\)Ca\(_{6.00}\)(Fe\(^{3+}\)\(_{1.48}\)Fe\(^{2+}\)\(_{0.52}\))\(\square\)Mn\(_{0.30}\)(Zr\(_{3.02}\)Ti\(_{0.09}\))\(\square\)Nb\(_{0.40}\)Si\(_{24.71}\)O\(_{72}\)(CO\(_3\))\(_{1.03}\)Cl\(_{0.46}\)\(\cdot\)0.74H\(_2\)O.

**Mineral Group:** Eudialyte group, the CO\(_3\)-dominant analog of feklichevite with vacancies dominant in the M3 structural site.

**Occurrence:** In a nepheline-pectolite vein within ijolite.

**Association:** Nepheline, pectolite, aegirine-augite, zircon, titanite, humite, andradite, scolecite, calcite.

**Distribution:** From the northern face of the iron-ore quarry at the 115 m horizon, Kovdor massif, Kola Peninsula, Russia.

**Name:** For the mountain, Mogo-Vid, near the locality from which the first specimens were collected.

**Type Material:** A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, (3221/1; 3290/1).

**References:**  
(1) Chukanov, N.V., M.M. Moiseyev, R.K. Rastsvetayeva, K.A. Rozenberg, and A.E. Zadov (2005) Golyshevite (Na\(_9\)(Ca\(_{4.05}\)Na\(_{0.87}\)K\(_{0.24}\)Ce\(_{0.06}\)La\(_{0.03}\)\(\square\)Ca\(_{6.00}\)(Fe\(^{3+}\)\(_{1.48}\)Fe\(^{2+}\)\(_{0.52}\))\(\square\)Mn\(_{0.30}\)(Zr\(_{3.02}\)Ti\(_{0.09}\))\(\square\)Nb\(_{0.40}\)Si\(_{24.71}\)O\(_{72}\)(CO\(_3\))\(_{1.03}\)Cl\(_{0.46}\)\(\cdot\)0.74H\(_2\)O, and mogovidite, Na\(_9\)(Ca\(_{4.05}\)Na\(_{0.87}\)K\(_{0.24}\)Ce\(_{0.06}\)La\(_{0.03}\)\(\square\)Ca\(_{6.00}\)(Fe\(^{3+}\)\(_{1.48}\)Fe\(^{2+}\)\(_{0.52}\))\(\square\)Zr\(_{3}\)\(\square\)Si\(_{25}\)O\(_{72}\)(CO\(_3\))\(_{4}\)(OH,\text{H}_2\text{O})\(_4\), new eudialyte-group minerals from calcium-rich agpaitic pegmatites of the Kovdor massif, Kola Peninsula. Zap.Ross. Mineral. Obsch., 134(6), 36-47 (in Russian with English abstract).  