Agakhanovite-(Y)  
\((YCa)\square_2KBe_3Si_{12}O_{30}\)

**Crystal Data**: Hexagonal.  
*Point Group*: 6/m 2/m 2/m.  
Crystals are hexagonal prisms elongated along [001], and displaying {100} and {001}, to 60 \(\mu\)m.

**Physical Properties**:  
*Cleavage*: None.  
*Fracture*: Conchoidal.  
*Tenacity*: Brittle.  
*Hardness* = 6  
\(D(\text{meas.}) = \text{n.d.}\)  
\(D(\text{calc.}) = 2.672\)

**Optical Properties**:  
*Color*: Colorless.  
*Streak*: White.  
*Luster*: Vitreous.  
*Optical Class*: Uniaxial (+).  
\(\omega = 1.567(2)\)  
\(\varepsilon = 1.564(2)\)

**Cell Data**:  
*Space Group*: \(P6/\text{mcc}\).  
\(a = 10.3476(2)\)  
\(c = 13.7610(3)\)  
\(Z = 2\)

**X-ray Powder Pattern**: Heftetjem pegmatite, Tørdal, Norway.  
2.865 (100), 3.287 (96), 4.134 (84), 6.877 (56), 2.986 (43), 4.479 (38), 2.728 (36)

**Chemistry**:  
\begin{align*}
\text{SiO}_2 &\quad 69.56 \\
\text{Al}_2\text{O}_3 &\quad 0.35 \\
\text{Y}_2\text{O}_3 &\quad 9.69 \\
\text{Yb}_2\text{O}_3 &\quad 0.15 \\
\text{FeO} &\quad 0.02 \\
\text{CaO} &\quad 5.75 \\
\text{Na}_2\text{O} &\quad 0.07 \\
\text{K}_2\text{O} &\quad 4.52 \\
\text{BeO} &\quad [7.06] \\
\text{H}_2\text{O} &\quad [1.74] \\
\hline
\text{Total} &\quad 98.91
\end{align*}

(1) Heftetjem pegmatite, Tørdal, Norway; average of 7 electron microprobe analyses supplemented by Raman spectroscopy, BeO, H\(_2\)O and vacancies calculated from structure; corresponds to \((Y_{0.89}\text{Yb}_{0.01}\text{Ca}_{1.06})_{\square_2}\text{K}_{1.00}(\text{Be}_{2.93}\text{Al}_{0.07})_{\square_2}\text{Si}_{12.02}\text{O}_{30}\).

**Mineral Group**: Milarite group.

**Occurrence**: In miarolitic cavities in granitic pegmatite and crystallized from late-stage hydrothermal solutions enriched in yttrium.

**Association**: Microcline, albite, quartz, milarite, kristiansenite.

**Distribution**: From the Heftetjem pegmatite, between Høydalen and Skarsfjell, Tørdal, Norway.

**Name**: Honors Atali A. Agakhanov (b. 1971), mineralogist at the A.E. Fersman Mineralogical Museum, Moscow, Russia, who has worked on a wide variety of pegmatite minerals, including minerals of the milarite group.

**Type Material**: Mineralogy collection, Royal Ontario Museum, Toronto, Ontario, Canada (M43863).

**References**:  
(1) Hawthorne, F.C., Y.A. Abdu, N.A. Ball, P. Černý, and R. Kristiansen (2014)  
Agakhanovite-(Y), ideally \((YCa)\square_2KBe_3Si_{12}O_{30}\), a new milarite-group mineral from the Heftetjem pegmatite, Tørdal, Southern Norway: Description and crystal structure.  