Tundrite-(Ce)  \( \text{Na}_3(\text{Ce,La})_4(\text{Ti,Nb})_2(\text{SiO}_4)_2(\text{CO}_3)_3\text{O}_4(\text{OH}) \cdot 2\text{H}_2\text{O} \)

\( \odot 2001 \) Mineral Data Publishing, version 1.2

Crystal Data:  Triclinic.  \textbf{Point Group}: \( \overline{1} \).  Crystals acicular along [001] and flattened on \{010\}, to 3 cm; as stellate groups and spherulitic masses.  \textbf{Twinning}: On \{010\}, producing pseudohorbohedra.

Physical Properties:  \textbf{Cleavage}: Pronounced on \{010\}.  \textbf{Fracture}: Splintery.  \textbf{Tenacity}: Brittle.  Hardness = \( \sim 3 \)  D(meas.) = 3.70–4.12  D(calc.) = 4.06

Optical Properties:  Transparent.  \textbf{Color}: Brownish yellow, greenish yellow to bright light green.  \textbf{Streak}: Yellowish gray.  \textbf{Luster}: Vitreous to adamantine.  \textbf{Optical Class}: Biaxial (+).  \textbf{Pleochroism}: Weak; \( X = \) pale yellow; \( Z = \) greenish yellow.  \textbf{Orientation}: \( Z \wedge c = 4^\circ$–$14^\circ \) \( \alpha = 1.743 \) \( \beta = 1.80 \) \( \gamma = 1.88 \)  \( 2V(\text{meas.}) = 76^\circ \)

Cell Data:  \textbf{Space Group}: \( P1 \).  \( a = 7.533(4) \) \( b = 13.924(6) \) \( c = 5.010(2) \) \( \alpha = 99^\circ 52(2)' \) \( \beta = 70^\circ 50(3)' \) \( \gamma = 100^\circ 59(2)' \)  \( Z = 1 \)

X-ray Powder Pattern:  Ilímaussaq intrusion, Greenland.
13.49 (100), 2.505 (100), 3.448 (90), 2.766 (90), 3.535 (80), 6.784 (70), 1.914 (70)

Chemistry:

\begin{align*}
\text{SiO}_2 & \quad 10.03 \\
\text{TiO}_2 & \quad 12.20 \\
\text{La}_2\text{O}_3 & \quad 8.57 \\
\text{Ce}_2\text{O}_3 & \quad 24.38 \\
\text{Nd}_2\text{O}_3 & \quad 10.25 \\
\text{RE}_2\text{O}_3 & \quad 5.80 \\
\text{Nb}_2\text{O}_5 & \quad 3.44 \\
\text{CaO} & \quad 0.75 \\
\text{Na}_2\text{O} & \quad 8.20 \\
\text{CO}_3 & \quad 16.38 \\
\text{Total} & \quad [100.00]
\end{align*}

(1) Ilímaussaq intrusion, Greenland; by electron microprobe, C confirmed by loss on ignition; original analysis given as elements, here recalculated to oxides, corresponding to \( \text{Na}_3\text{Ce}_{1.78}\text{Nd}_{0.73}\text{La}_{0.63}\text{RE}_{0.41}\text{Ca}_{0.10}\text{Si}_3\text{Ti}_{1.83}\text{Nb}_{0.31}\text{O}_{4.14}\text{CO}_2\text{O}_2\text{OH}_4\text{H}_2\text{O} \).

Occurrence:  In pegmatite veins associated with nepheline syenites.

Association:  Aegirine, lamprophyllite, lorenzenite, rhabdophane (Mt. Lepkhe-Nelm, Russia); natrolite, microcline, albite, aegirine, fluorite, rinkite, eudialyte (Ilímaussaq intrusion, Greenland).

Distribution:  On Mt. Lepkhe-Nelm, Lovozero massif, Kola Peninsula, Russia.  In southern Greenland, from the Ilímaussaq intrusion, at Kringlerne, on the Kangerdluarssuk Plateau, and at Kvanefjeld.  From Mont Saint-Hilaire, Quebec, Canada.

Name:  After the Lovozero massif (formerly the Lovozero tundra), Kola Peninsula, Russia, where it was discovered, and the cerium content.

Type Material:  A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 72020.


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